DECEMBER, 1949

Industrial FINISHING

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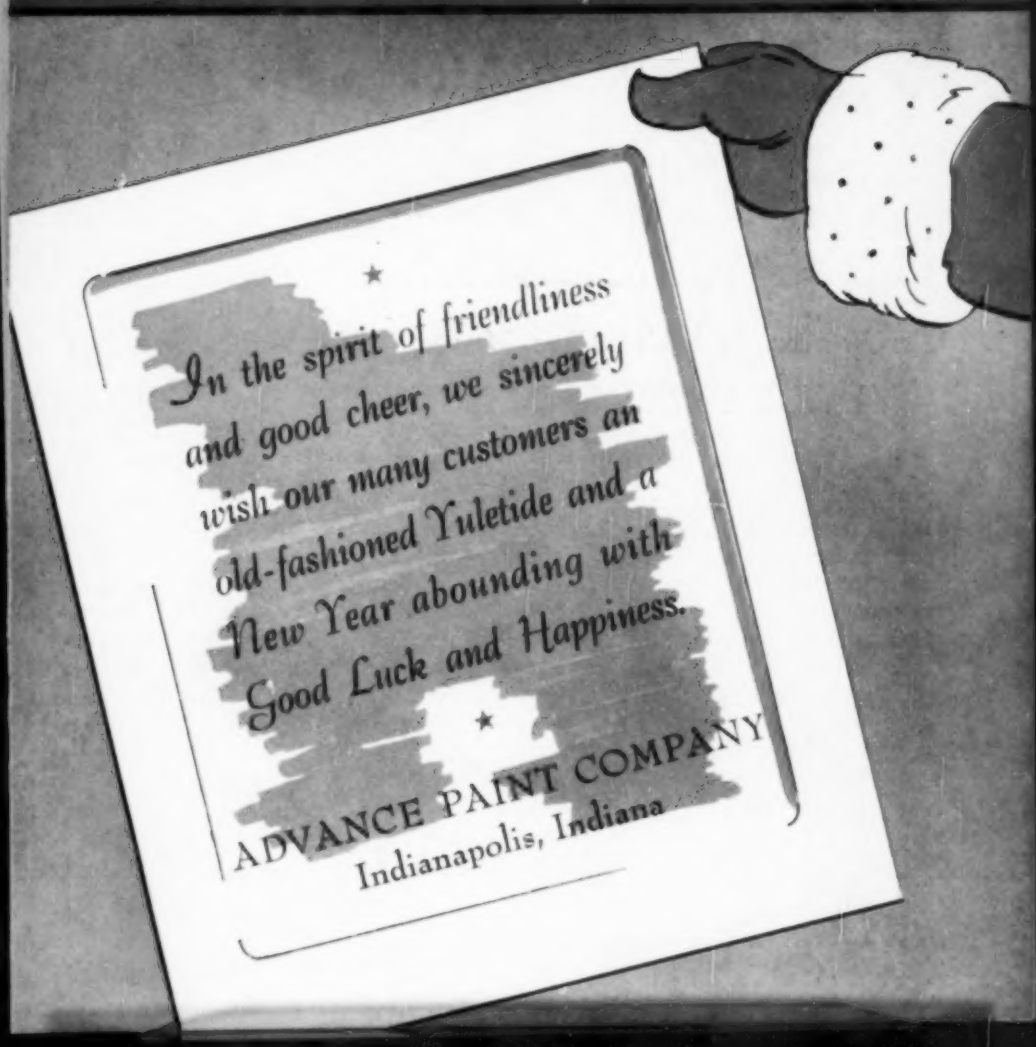
In the spirit of friendliness and good cheer, we sincerely wish our many customers an old-fashioned Yuletide and a New Year abounding with Good Luck and Happiness.
ADVANCE PAINT COMPANY
Indianapolis, Indiana

For its new, portable "Time-Master," Dictaphone selects....

A MAR-RESISTANT FINISH THAT SPEAKS FOR ITSELF

Design a portable dictating machine for the businessman on the go and you have to finish it with an extremely tough, mar-resistant, abrasion-resistant finish . . . one that will speak well for itself and for the product after that product has had years of hard use in the office and has also traveled hundreds, perhaps thousands, of miles under Pullman berths, in airplane luggage compartments, and in the back of a car.

For finishing just such a machine . . . the new, "personal" Dictaphone "Time-Master" . . . Dictaphone engineers are using Interchem Finishes. You can depend on it that the knowledge and experience which formulated these extremely tough, mar-resistant, abrasion-resistant finishes for Dictaphone Corporation can engineer finishes of lasting beauty for your product.

Write Interchemical Corporation, Finishes Division, 57 State St., Newark 1, New Jersey.

Interchem *Finishes*

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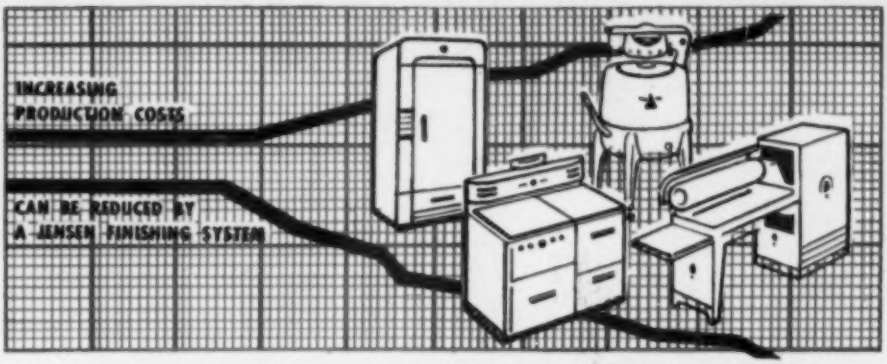
TODAY'S COMPETITION DEMANDS THAT YOU REVIEW YOUR FINISHING COSTS



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Today, cost-conscious manufacturers whose operations involve low temperature baking, drying, preheating or dehydrating, are cashing-in on the money-saving advantages of infra red radiant heating *plus* coordinated conveying to be found in Jensen Finishing Systems.

Jensen Finishing Systems are *engineered for economy*—designed to increase production and minimize rejects; produce a uniform, finer, tougher finish, using less man hours, less floor space.

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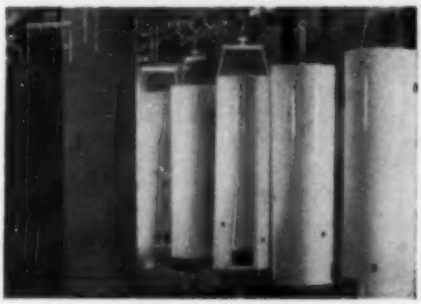
Let us conduct laboratory tests on *your* products, using *your* finishes. Parts will be promptly returned for your inspection, together with recommendations to meet your production requirements. *You get practical proof of every possible cost saving.*



● Once considered impossible to accomplish with infra red, this Jensen "Dual Heat" *nested-lamp* oven dependably bakes a uniform white and ivory enamel finish on water heater jackets—delivers faster, better results, *plus* over-all economies. *Have you an "impossible" job that needs doing? Let's discuss it.*

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This bedroom suite by the Hooker-Bassett Furniture Company has combined beautiful Honduras mahogany veneers with authentic design to create the atmosphere and grace of true Hepplewhite. In the same way, we have combined a great deal of knowledge, research and finest quality ingredients to create a truly traditional finish for this outstanding group.

Cooperation between the manufacturer and the studios of the Grand Rapids Varnish Corporation has achieved a finish that combines sales appeal with practical manufacturing economy.

For further information regarding our studio facilities and services please write to

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GRAND RAPIDS, MICHIGAN
Makers of the Famous Guardsman Finish

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Industrial FINISHING

W. H. ROHR, Editor **P. C. BARDIN, Associate Editor**

Contents

DECEMBER, 1949
Vol. XXVI, No. 2

CCA

istributed monthly to finishing oom and paint shop foremen, roduction superintendents, hemists, purchasing agents and ompany executives of industrial lants where production cleaning nd finishing are major operaons in the manufacture of parts nd products.

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Random Comment on the Industrial Scene 4
The Hot Spray Process 12
The Nash Automobile Finish 30
Luminescent Paints 40
Highlights of Silk Screen Process Convention in Cleveland 52
Finishing Furniture in Canada 64
Letters from Readers 80
Questions and Answers 86
Materials; Supplies; Equipment 90
Booklets; Circulars; Catalogs 96
Editorial 100
"Classified Advertising" Section 117
Advertisers Index 120

Information on Solvents; Where to Get It 39
Wilkinson Equipment Co. Will Distribute Graco Products 39
Chemical Dip Polishes Metal to High Luster 56
To Overcome "Oil Bloom" on Lacquer Finishes 63
Porter-Cable Buys and Moves Sterling Tool Products 63
Hilo Presents Gold Watch to J. E. Hayes 63
Safety in Use of Solvents 72
L. E. Nykamp Represents A.F.S. Co. in Western Michigan 72
More About Tack Rags for Finishers 74
Spray Painting Courses Announced by DeVilbiss 76
National Production Exposition to be in Chicago in 1950 76
Detrex Elects R. L. Murray As a Director 76
Briner Paint Mfg. Co. in Texas Elects Officers 76
Special School on Ceramic Finishing Offered by Binks 84
Dietz Becomes Industrial Sales Mgr. of DuPont Finishes Divn. 84
Aluminum Industries Offers A Line of Quality Varnishes 84
Meters to Measure Flow of Finishing Material 95
"Chemicals You Live By" 110
Criticism of Tack Rag Article 114
Training A Helper for Your Spray Operator 115

Acceptance under Section 34.64, P. L. & R., authorized

26 TWENTY-SIXTH YEAR OF PUBLICATION

Toys this year have been modernized and reflect every phase of life today. Some of them include atomic energy and jet propulsion. Diesel locomotives have replaced the steam type in electric trains. Some of the dolls are boys dressed in cowboy suits, fireman's uniforms, etc. Even the games emphasize real life situations and include world trade, traffic safety, gardening and real estate.

Kenneth P. Fallon, president of the toy manufacturers association said the toy-using population is 43 million children, or about 40% greater than before the war.

This comprises a large and highly important group of little people who generally get most of what they want.

* * *

Employee Relations. Westinghouse Electric Corp. was awarded the grand trophy by the Associated Industries of Massachusetts, in its second annual contest for the best financial report to employees.

This 8-page tabloid report shows, both in dollars and percentage-wise, what went to employees, to elected officers and stockholders; the amounts paid in taxes and the amounts used for improvements and replacement of equipment. Thorough understanding improves relations between all men.

* * *

Certified Die Castings. For the protection of those who buy and use zinc die castings, the American Die Casting Institute has announced a plan whereby die casters may identify castings with a certification seal which will be a mark of metallurgical quality.

The American Society for Testing Materials has long had definite composition limits for zinc die casting alloys. Under the new plan the purchaser is assured that the metal conforms with these limits.

* * *

To Seal Porous Materials such as concrete, stone or brick, a new coating is announced. This water repellant, protective coating penetrates the surface of the material to prevent deterioration through weathering, corrosion or fungus growth. The coating is available in ten colors and dries to a flat finish.

* * *

Report On Furniture. According to the New York Times, department stores and chain home-furnishing houses are placing large pre-market bedroom furniture orders for January and February delivery. Buyers agreed that volume is heavier than at this time last year. Last year uncomfortably large inventories kept ordering to a bare minimum. This year the furniture business has been good since August, and sizable purchases must be made to bring inventories to the required level.

Where new numbers have been introduced, styling has been improved with quality remaining the same. In most cases, current numbers are of-

(Continued on page 6)

Dolan's 35% HI-SOLIDS LACQUER

. . . sprays right from the drum: requires no thinning or heating. 35% solids in a single application.

OUTSTANDING!!

. . . Because it can be sprayed without the addition of thinners or the necessity of pre-heating to bring down to spraying viscosity, Dolan's 35% Hi-Solids Lacquer gives an improved finish at greatly reduced cost. It is unusually tough, with exceptional cold check resistance. Very light in color. Fits into any finishing schedule. A demonstration will prove convincing. Write us for 5 gallons at drum price!

"From the start consider the Finish"

V. J. DOLAN & COMPANY, Inc.

Manufacturers of *"Unquestionable Quality"*

INDUSTRIAL FINISHES

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SIMPLIFY BOOTH CLEANING

"LIQUID ENVELOPE"
PEELABLE SPRAY BOOTH COATING

Sprays on in minutes with your regular spray equipment. Dries quickly to form non-combustible, self-supporting film. Peels off as easily as peeling a banana — no matter how thick the accumulated spray dust. Eliminates paper, grease, hand-scraping, fire-hazard. Now used in hundreds of large and small plants because *it saves time and money.*

ORDER TEST-SAMPLE *NOW*
5 gallons shipped prepaid on a money-back guarantee $13.75
Attractive low price on quantity re-orders.

BETTER FINISHES & COATINGS, INC.
268 DOREMUS AVE., NEWARK 5, N. J.
127 E. 7th ST., LOS ANGELES 14, CAL.
IN CANADA: HUGH RUSSEL & SONS, LTD., MONTREAL AND TORONTO

fered at generally unchanged prices. It is thought unlikely that prices will increase between now and the time for markets.

It appears that both manufacturers and buyers have learned some valuable lessons from past experience.

* * *

Big Paint Business. Despite some unrest and uncertainties it looks like the paint business has been excellent this year. Joseph F. Battley, president of the National Paint, Varnish & Lacquer Association, predicted that the volume of business done by the industry will again top the billion dollar mark for the third successive year.

Mr. Battley, speaking at the 61st annual convention of the Asociation, said that between 1937 and 1947 the industry's yearly volume averaged 450 million dollars. Since 1947 it has more than doubled that figure.

J. Warren Kinsman, vice president of E. I du Pont de Nemours Co., warned members not to be too complacent regarding the force of collectivism. He said that business men should pay as much attention to spreading the truth about themselves as they do about sales and business problems.

* * *

Knock-Down Furniture seems to be gaining popularity among some of the none-too-well-fixed, newly married home makers. Several of these pieces, in unfinished birch and walnut, are attractively designed. They come to the purchaser pre-cut, with holes bored, screws, tacks, hardware, sandpaper and chair webbing included. Detailed instructions are furnished so that practically anyone can assemble the piece.

But what about the finish? Certainly detailed instructions, step by step should be included for finishing the

(Continued on page 110)

A SINCERE

Merry Christmas and Happy New Year

to our many friends throughout the industry.

KIRCO Kirker CHEMICAL COMPANY

ONE EAST ELEVENTH STREET • PATERSON 4, NEW JERSEY

COMPLE

Right Above: Spraying Syn
thetic Enamel on steel part
in a Mahon Hydro-Filte
Spray Booth. Above: Maho
Six Stage Metal Cleaning an
Aladizing Machine. In th
phase of the finishing proc
ess, parts are subjected t
Alkali Cleaner, Mild Alka
and Emulsion Solution, Col
Water Rinse, Aladine Trea
ment, another Cold Wate
Rinse, and finally a mil
Chomic Acid Solution. Par
then proceed through Dry-O
Oven, Spray Booths and Fi
ish Baking Oven.

Aluminum bike rims at a Chevrolet washing machine assembly plant are coats of special synthetic enamel on Mahon Hydro-Filter Spray Booths.

M

Finishing SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH

Enamel Coating of ALUMINUM SURFACES Requires Special Processing for Durability!

In planning this complete finishing system for enamel coating aluminum tubs, along with other steel parts on the same conveyor line in the plant of a household appliance manufacturer, special processing and procedure were developed to produce a durable, alkali resistant coating on aluminum which would stand up under severe conditions of wear and impact. The complete system was planned, engineered and installed by Mahon . . . it consists of a six stage Cleaning and Aladizing Machine, Dry-off Oven, two Hydro-Filter Spray Booths—one for aluminum tubs, the other for steel parts—a Filtered Air Supply System, and an Enamel Baking Oven. This is another typical Mahon solution of finishing equipment requirements to produce specific results. If you are contemplating new finishing equipment, or are faced with a finishing production problem, you can turn to Mahon with complete confidence—because, the Mahon organization has pioneered development in this highly specialized field for twenty-nine years . . this twenty-nine years of experience, which covers every industry where finishing constitutes a major production operation, together with constant research and experimentation, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon's Insert in Sweet's Mech. Ind. File, or write for Catalog A-649.

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AHON

THE Lilly COMPANY

FINESSES

High Point, N. C.

GREETINGS

If Santa carried two packs, one for gifts, the other to pack up your troubles, we know what he would do.

He would leave you the key to the right finish, so that you could eliminate finishing troubles and difficulties you may have in meeting your daily production and quality standards.

Since he doesn't, however, why not do it yourself . . . why not switch to a specific finish for specific products and purposes . . . switch to Lilly's Dependable finishing materials . . . and make sure that

"With the Right Finish, You'll Finish Right"

THE KEY
TO THE
RIGHT FINISH

THE Lilly FINISHES VARNISH COMPANY

Indianapolis, Indiana
Gardner, Mass.

THE *HOT SPRAY* PROCESS

By James A. Bede

President, Bede Products, Inc.

THE HOT SPRAYING process is designed to use heat as a viscosity reducing agent—in effect, substituting heat for thinners. In those factories where it has been properly put into practice, the results produced clearly established the potential benefits of the process. Labor and material savings can be achieved, and at the same time the quality of the finish can be improved.

Coincidental with recent improvements in paint heaters, important progress has been made by paint manufacturers in perfecting hot spray formulations. The chain is now complete so that any paint user who wishes to use this new process can undertake to do so with reasonable assurance of success, if he will follow the correct procedure.

Heat Thins Paint . . . Reduces Its Viscosity

In most of the hot spray setups, paints are heated to a fairly high temperature (between 160° and 200° F.) just before spraying. It is a well-known fact that temperature plays an important part in the application characteristics of any organic finish. We have all heard the expression, "slow as molasses in January". Every finisher has experienced the difference between spraying in winter time (say, at 60° F. or less) and in summer time (say, at 90° F. or more.) If 30° makes so much difference, how much greater benefits would be obtained if we increased the paint temperature still another 100° F.?

The maximum objective in hot spraying is not simply to level off daily and seasonal temperature

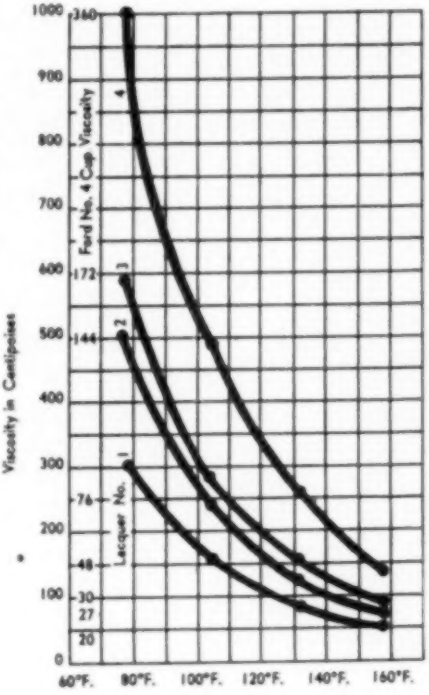


Fig. 1

Graph shows the decrease in viscosity of several nitrocellulose lacquers as their temperature is raised from 77° F. to 157° F. Courtesy of Hercules Powder Co.

fluctuations, but to obtain thermal control at a much higher temperature than prevails on the hottest summer day, thereby obtaining the maximum benefits from heat.

By heating paint (by this term I include enamel, lacquer, synthetics, varnish, etc.) to 160° F. its viscosity is generally reduced to one-third or one-fourth of its viscosity at 70° F. Of course, there is a natural limit to this thermal action. When the viscosity of a coating material reaches approximately 12 to 13 seconds, very little further drop is encountered. The saturation point of the thermoplastic action is generally reached at approximately 160° F. for synthetics, but it is a little higher for lacquers. The charts identified as Figs. 1 and 2 show typical temperature-viscosity curves for both lacquers and synthetics.

Differences Between Hot and Cold Spray

Another important key factor to consider is the greater loss of solvent in the process of atomization. A typical example of what takes place in hot spraying as contrasted to cold spraying, is indicated in the chart marked Fig. 3. The figures given are meant only as a typical illustration, to show what action takes place, and do not necessarily apply to all types of finishes. The relationship of solid content, viscosity, solvent loss in atomization, etc., will vary with different finishes, but the ratio of variation and performance between cold and hot spraying is virtually the same for all types of organic finishes.

In the process of atomization a certain amount of solvent is released from the finish. This amount varies, depending upon temperature, evaporation rate of the solvent, the distance the gun is held from the surface, etc., but it generally averages between 16% and 22% for room temperature spraying. Therefore, the coat of finish deposited on the surface has a greater proportion of solids and a lower solvent content than the original material.

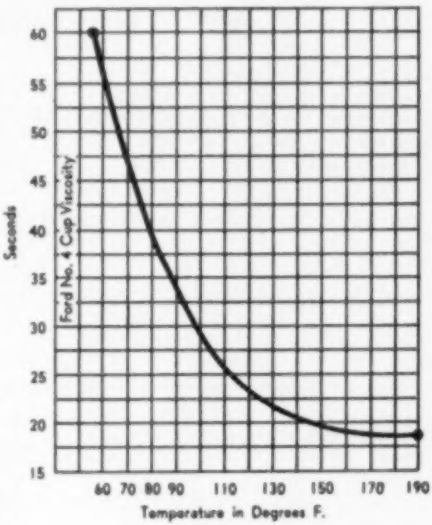


Fig. 2

How viscosity drops as the temperature of material is increased, is shown by graph, the material tested being No. 2527 Glyptal.

In hot spraying the solvent loss is much greater (up to 80%) because the paint comes out of the gun at almost the boiling point of the solvent. This solvent loss is desirable, provided the remaining solvent carries the burden of proper flow. This is probably the most

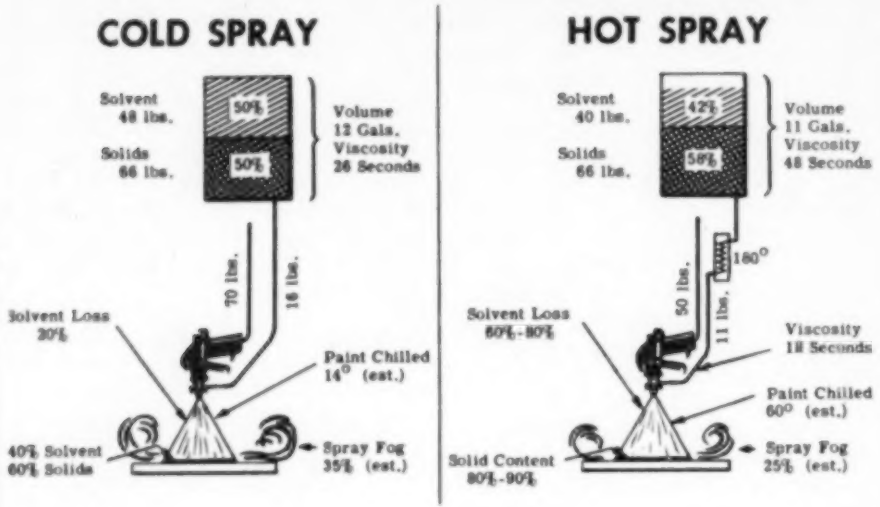


Fig. 3—This chart shows comparisons of what is used when spraying paint cold and hot.

Total trigger time required to spray all of the material (flow, 12 gallons per hour).

60 minutes of spraying time.

54 minutes of spraying time.

Total volume of compressed air used in atomization of the material sprayed, as shown above.

6981 cubic feet of free air (70-lbs. at 20.2-cubic feet per minute, times 60 minutes).

3682 cubic feet of free air (50-lbs. at 15.5-cubic feet per minute, times 54 minutes).

Film thickness required to cause a sag in the material sprayed on a vertical surface.

1.2 mils of film thickness.

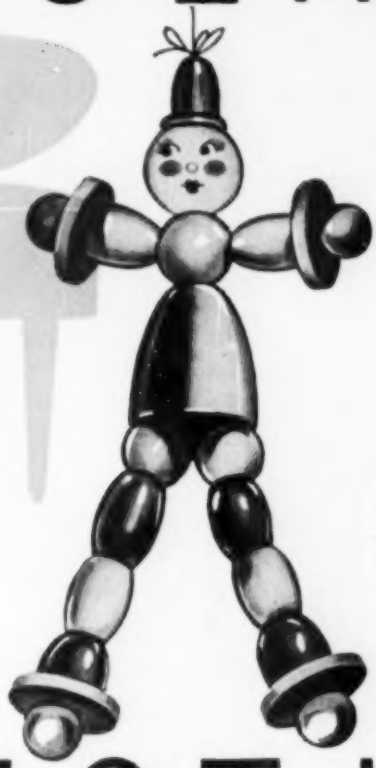
2.6 mils of film thickness.

Cold spray test. To ten gallons of typical synthetic enamel, two gallons of solvent are added (20% reduction) raising the total solvent content to 50% by volume and lowering the viscosity to 26 seconds. Fluid pressure of 16-lbs. gives the correct rate of material flow (12 gallons per hour) for efficient stroking with spray gun. The paint, as it leaves the spray gun, requires a pressure of 70-lbs. per square inch compressed air for proper atomization.

Hot spray test. Instead of two gallons, only one gallon of solvent is added to ten gallons of synthetic, making the solvent content 42% by volume, and lowering the viscosity to 48 seconds. Heating to 180° F. reduces the viscosity to 18 seconds. A fluid pressure of 11-lbs. gives a rate of flow of 12 gallons per hour. A pressure of only 50-lbs. per square inch of compressed air is needed to properly atomize the heated material.

(Continued on page 17)

LACQUER



From grand pianos to children's toys, no other wood finish can beat lacquer with its outstanding combination of:

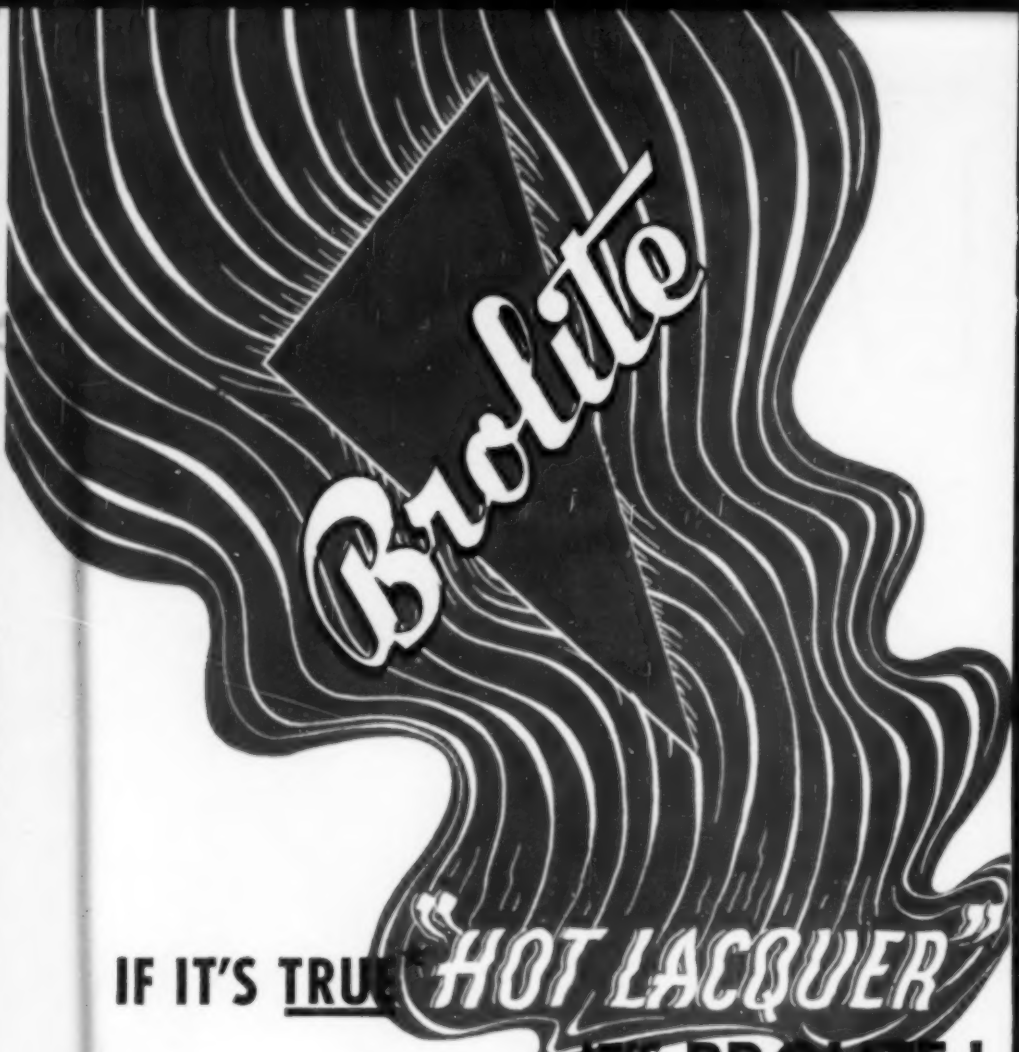
- QUICK DRY
- COLOR VARIETY
- VERSATILITY
- DURABILITY
- EYE-APPEAL
- ECONOMY

HERCULES POWDER COMPANY

928 Market Street, Wilmington 99, Del

IS BEST!

Hercules does not manufacture lacquers, only the basic materials from which they are made



IF IT'S TRUE "HOT LACQUER" ...IT'S BROLITE !

★ ONE COAT OF *TRUE* "HOT LACQUER" BUILDS BETTER, RUBS MORE BEAUTIFULLY, AND LASTS FAR LONGER THAN TWO OR THREE COLD COATS.

PHONE TODAY AND GET FULL INFORMATION ABOUT THIS GREAT TIME AND MATERIAL SAVING PRODUCT.

ANDREW BROWN COMPANY

Phone the nearest factory today...in MARYLAND ask for LAUREL exchange.
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critical factor in hot spraying, and the one point which may make a hot spray test fail; however, it is this very fact that brings about so many benefits of hot spraying.

Evaporation of solvents, plus expansion of the compressed air used in spraying causes a refrigerating action. Because of the heat involved, the atomized particles in a hot spray drop much more in temperature than the same particles in a cold spray, but still they reach the product surface at a higher temperature and with better flow characteristics than cold spraying.

Some finishers mistakenly anticipate that heated paint will strike the surface while still very warm, and they are disappointed when they find this is not so. It is important to keep in mind the fact that atomization takes place within one inch of the tip of the spray gun, where opposing air streams from the cap converge. The rest of the fan action simply spreads the atomized particles to the desired pattern for easy spreading of the paint on the surface. Any subsequent paint chilling can be ignored.

Temperature plays an important part in the spraying properties of every finish, and there is an ideal temperature at which it can be sprayed for best results. At this ideal heat, atomization is most easily accomplished and the paint particles flow out perfectly smooth.

What May Be Gained by "Hot Spraying"

With the correct, efficient use of the hot spray process both the spray gun and the paint can be made to work much better than before, thereby resulting in a whole series of possible benefits, some of which are as follows:

Possible Savings

1) Saving of paint.
2) Saving of thinner.
3) Saving of labor.
4) Fewer rejects.
5) Saving in compressed air.
6) Less cost of fuel for baking.
7) Saving on heated air lost through spray booth exhaust.
8) Saving on overhead.

Better Quality Finish

1) Getting a smoother film (less orange peel).
2) Increased gloss of film.
3) Surface imperfections are covered more effectively.

Increased Production

1) Less actual spraying time; one coat often does the work of two.
2) Fewer rejects to rework.
3) Shorter drying time.
4) No blushing when spraying lacquer.

Better Health

1) Less solvent fumes to inhale.
2) Less spray fog to rebound into sprayer's face.

This may seem like an imposing list, yet every one of these benefits can be accomplished—in some cases all of them at once. In many cases, however, the hot spray process is used to obtain only one or two of the specific benefits listed here. In nearly every factory, management is seeking certain improvements in the paint department in preference to any others; for example, to reduce paint loss, to reduce rejects, or perhaps to obtain better coverage.

A savings in the quantity of paint used is probably the most im-

portant point of all, but this requires the most careful attention. Basically, paint savings can be obtained because the heated paint requires less air pressure for atomization, therefore, a proportionally smaller quantity of paint particles are blown past the surface being sprayed. Few people realize how much paint may be lost in ordinary spraying. Because we have reconciled ourselves to this loss, the tendency is to ignore it.

An important point to consider in attempting to obtain paint savings is to avoid putting on the surface a film thickness which is greater than what is really needed. Otherwise, the reduction in overspray will be more than offset by the greater amount of material (a thicker film than is needed) deposited on the surface. It is possible to maintain any film thickness desired. (The range is much greater than for cold spraying). Film thickness is controlled by correctly adjusting viscosity of the material.

It is important to bear in mind that the amount of solvent used in hot spraying must be carefully specified and controlled. Let us consider three different classes of spraying operations, as follows:

1) Where the object is to maintain a minimum film thickness—just enough to cover the surface.

2) Where the objective is to spray a moderately heavy film to produce an attractive effect; in other words to give some "depth" to the finish.

3) Where multiple coats are applied with the object of getting the thickest film and the highest quality of finish possible; in other words plenty of "depth".

Lower Atomizing Pressure: Less Thinner Used

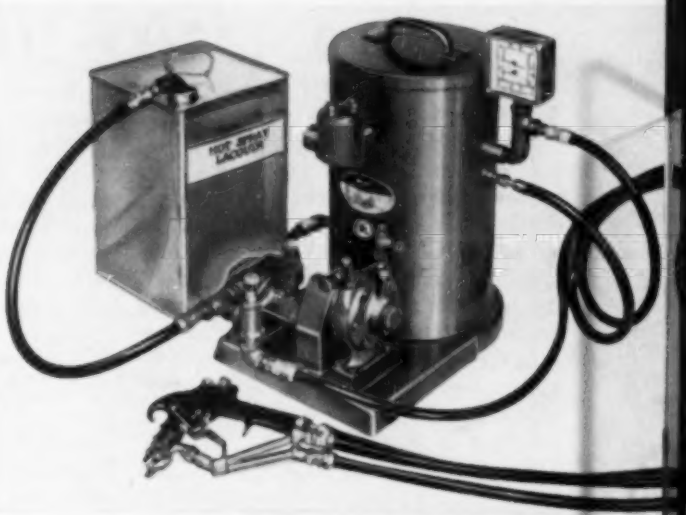
For the first class of operations —where paint saving is the primary objective — the amount of thinner used for hot spraying should be the same or close to that which is used for cold spraying. As this relatively thin material passes through the heater, its viscosity is still further reduced, and atomizing air pressures can be lowered, generally to as much as one-half or one-third of the pressure formerly required. It is extremely important to lower the fluid pressure also; otherwise, too much material per second of trigger action will come out of the gun, and the tendency of the sprayer will be to apply too heavy a film on the surface.

For the second group of operations it is best to start out with half the normal amount of thinner used, observe the film thickness obtained, and then further adjust the solvent content down or up to increase or decrease the amount of material deposited on the surface.

In the third case, generally a two or three-coat operation (spraying cold) can be reduced to one coat by replacing the solvents with heat as much as possible. This is especially true for lacquers, etc.

In all cases where the hot spray process is properly used, very little spray dust is blown into the spray booth, but we must guard against the tendency of sprayers (especially those beginning to use the hot spray process) to offset this saving by depositing a much heavier film than is needed or wanted. *It is not correct to assume that hot spraying necessarily means a heavier film*

For Hot Spray...



The New

BEDE

Circulating Paint Heater

Sprays Directly from Paint Container

With the UL tested Bede Paint Heater is now available a circulating arrangement which eliminates all of the recognized difficulties previously encountered with circulating paint heaters. Paint cannot clog shaft seal and the pump is long-lasting because it operates at 1/5 to 1/10 of speeds formerly required. Better quality paint films, fewer rejects, and decreased paint and labor costs are possible with the new Bede Circulating Heater.

- Explosion-proof Heater Tested and Passed by Underwriters
- Accurate Temperature and Paint Pressure Control
- The Newest, Most Modern Equipment Addition for Your Paint Department
- Rugged, Foolproof Construction

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INDUSTRIAL FINISHING SPECIALTIES

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thickness, although many people have this idea. When properly controlled, any film thickness can be obtained, and overspray in the spray booth can be reduced.

Savings in Thinner; Savings in Labor

Because heat is used as a viscosity reducing agent (to make the material thin) less thinner is generally required. The exception is, as previously pointed out, where a minimum film thickness is desired, in which case nearly the same amount of thinner is used in order to safeguard the tendency of the spray operator to spray too heavy a coating. However, where the problem is to deposit a normal full coat of one mil or more in thickness, the thinner saving is quite an item. The Hercules Powder Co. shows, in its analysis of hot spraying of lacquer, that direct material costs are 13½% lower.

A non-circulating heater . . . heats paint to temperatures up to 200° F. Paint and air coils are heated by two cartridge-type heaters, using aluminum as the heat transfer agent. Temperature settings can be maintained within ½° F. A gauge shows paint temperature and pressure as paint leaves the heater.—Courtesy Bede Products, Inc.

Heated paint is so much easier to atomize that the spray gun becomes a more efficient tool and can handle a larger volume of finish per second of trigger action. Results: Fewer strokes of the spray gun. In many cases criss-crossing of strokes can be omitted, and often where a sprayer formerly required ten strokes to spray a given area he will need only six or seven strokes with the hot spray. In fact, one of the difficulties in introducing hot spray is to teach the operator to take fewer strokes with the spray gun. Besides the saving in direct labor required for spraying, additional indirect labor is saved in fewer rejects to handle and rework; also, less sanding and polishing.

Fewer Rejects; Less Air; Less Time in Oven

Rejects, attributable to improper spraying, poor covering and sags, can be greatly reduced. As an example, one large refrigerator manufacturer reports that this class of rejects has been reduced to one-tenth of the number prevailing before paint heaters were installed. Sags especially were reduced. It is a common tendency for good sprayers to deposit a wet film which closely approaches the sagging point. In hot spray the "wet point" is reached sooner and there is a much greater margin of safety.

In those plants where a high quality finish is required, the elimination of rejects by the hot spray

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- Newer Emulsion Cleaners Designed to Reduce Material Usage and Produce Better Results.
- Longer Using Life, and Greatly Reduced Concentrations Afford Users a Definite Savings.
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For

silver, cadmium, zinc, copper, brass, aluminum.

OUTSTANDING

1. Adhesion to metal surfaces
2. Resistance to sulfur tarnish
3. Resistance to oxidation
4. Resistance to perspiration
5. Resistance to abrasion

Pale in color. Takes 100-200% reduction. Dries under 15 minutes.
A premium product — priced at ordinary lacquer levels.

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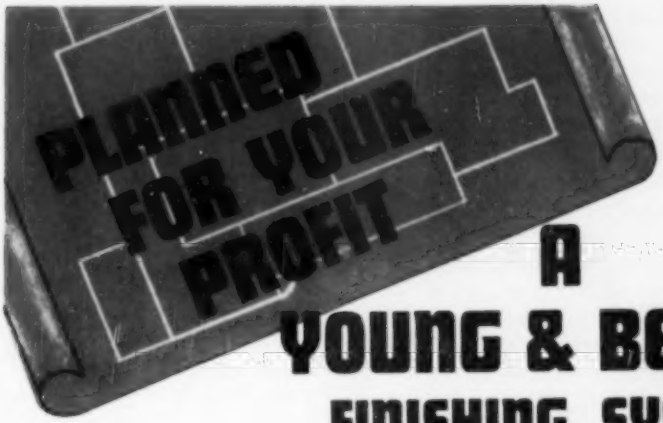
method really means something. Reworking rejects is an operation which upsets production quotas, and whatever reduces or eliminates rejects does produce a series of benefits.

As indicated on the accompanying spray chart the volume of compressed air needed for atomization of the paint is reduced by nearly one half which, over a whole year, becomes an appreciable item of saving.

Often the hot spray process can reduce the time required for baking the paint film, and therefore save on fuel costs. This is due to the fact that the curing operation cannot start until practically all solvents are released from the film. With the hot spray process the painted article reaches the oven with a much lower thinner content, and less time is required to expel the remaining solvents. This factor seems to be more noticeable with infra-red baking.

Where the painted parts are air-dried, the heater brings benefits in that the paint dries dust-free in a fraction of the time formerly required. It is not correct to assume

A circulating heater. Paint can be heated to temperatures up to 200° F. A fluid pump, gear-driven by an air motor, circulates the paint through the heater to the gun and back through the heater, thus maintaining a constant supply of hot material at the gun. No pressure tank is needed with this type of heater, since the paint can be pumped directly from the container. Pressure and temperature can be closely controlled, and are shown by a gauge on the paint line to the gun.—Courtesy Bede Products, Inc.



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An attractive finish sells your product. So the most modern and economical methods of finishing in your plant are important to you in sales and profits.

Illustrated is a conveyor type oven equipped with a Burdett Infra Red Heating System.

Young and Bertke engineers offer you this modern economy in finishing systems. Each and every piece of finishing equipment designed and installed by Young and Bertke engineers in your plant, is planned for your profit. Savings in many cases of 30, 40, and up to 60% in operation and efficiency have been effected in plants where Young and Bertke Finishing Systems have recently been installed. It will pay you to consult us on all your finishing equipment needs, spray booths, batch, conveyor, and laboratory type ovens, or complete finishing systems. Let us plan a system which will mean added profits to you. Write us today.

OVENS - SPRAY BOOTHS - FINISHING SYSTEMS

The YOUNG BERTKE Co.

1126 BUCK STREET **CINCINNATI, OHIO**

that with air-dried finishes the true curing or hardening process is speeded up. The only advantage of the hot spray process, in this case, is to deposit the finish with less solvent content.

With lower atomizing air pressure and a consequent reduction in spray fog, the volume of room air exhausted by the spray booth fans can be reduced. Of course, this saving can be achieved only if provision is made to reduce the amount of air exhausted by the spray booth fans. It is calculated that in an area like Cleveland or Chicago, the cost of heating air in a large plant ranges from $60 to $75 per 1000-cu. ft. of air exhausted during the winter season.

Smooth Film of Paint; Gloss Characteristics

Regardless of the type of formula, or color of finish, there is some one ideal temperature at which the paint performs best. At this ideal temperature the paint flows out smoothly. A smoother, less porous film structure is obtained, since there is less solvent to be expelled from the film. In most cases the smoothness and depth of film obtained is the most conspicuous improvement of all.

Greater gloss is the one item of improvement that does not necessarily hold good for every single occasion. In the majority of cases the gloss is improved proportionately to the reduction of orange peel, but we do have cases on record where the gloss is not improved at all. This probably occurs when the solvent balance in the finish is not correctly adjusted for hot spraying.

It has often been observed that a finisher's ability to fill surface imperfections is in inverse ratio to the amount of solvent content in the wet film applied to the surface. Surface imperfections are revealed through the cured film because of the evaporation of the solvent and consequent shrinkage in the film. Since the hot spray process deposits, on the surface, a film with much less solvent content, shrinkage is reduced and filling properties are proportionately improved.

Spraying time is reduced because the spray gun can discharge a much greater volume of solids, requiring fewer strokes of the gun to spray a given area. By actual count, ten spraying strokes are often reduced to six or seven. This saving in spraying time becomes an increasingly greater factor as the percentage of thinner is reduced. For lacquer application especially, the hot spray process is advantageous. With hot lacquer one coat can replace two or three coats that are sprayed cold.

No Lacquer Blushing; No Retarders Needed

In certain areas, at certain seasons of the year, lacquer sprayers experience difficulties because of blushing, a condition where moisture condenses on the freshly sprayed lacquer coating due to the rapid evaporation of solvents. The usual remedy for blushing is to use retarders — expensive, slow-evaporating solvents. With the hot spray process it is virtually impossible to create a blushing condition, and it is not necessary to use retarders.

When we substitute heat for thinners, less solvent is used, and

how do you wear a halo anyway?

So VELVA-TON FASTUFF has cut drying time 40%, and you've increased production because now your product can be handled in only 15 minutes, packed in 2 hours. Do we deserve a halo?

Many manufacturers all over the country have already helped their production by eliminating floor space problems, plus getting a stronger, smoother, high-gloss finish. Do we deserve a halo for that?

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LINDEN, N. J. EVERETT, MASS.

obviously less solvent fumes are thrown off by spraying. It is well to bear in mind that according to health authorities the most important caution is to prevent the toxic action caused by solvents. Although these solvents seldom have permanent toxic properties, they can create annoying and temporarily harmful effects.

It is surprising to see how much less spray fog is generated in spraying operations when atomizing air pressures are reduced by one-half. In most cases the need for using a spray mask is eliminated. This is exceptionally beneficial when spraying into an enclosed compartment like a box or tool chest, or when the spraying must be done without benefit of a spray booth.

To properly effect the foregoing benefits of hot spraying, intelligent careful attention must be given to many details. Finishers must undertake to achieve these benefits with an open mind and with a consciousness that they must discard many of the habits they acquired in previous years of experience.

Paint Heaters: Circulating and Non-Circulating

Well-engineered paint heaters are now available in various designs. The main classifications are those that are circulating and non-circulating. Some also have provisions for partially heating the compressed air, taking off the chill in winter time.

Where it can be used effectively, a simple type of paint heater is the non-circulating unit which is located close to the spray gun. In this type of heater there are no moving parts, therefore, no maintenance trouble. The drawback, however, is that heated paint cools off in the fluid hose from the heater to the gun. If the spraying is reasonably steady, the drop in temperature in the fluid hose can be easily compensated for by simply increasing the temperature in the heater to give the desired temperature at the gun.

Where there is intermittent spraying, the cooling effect in the material hose is so irregular that correct heat control is not feasible. Also, in some cases, the fluid hose from the heater to the gun must be a long one, perhaps 12-ft. or more. In these cases it is better to use a circulating type of heater, wherein paint is forced into the heater by a pump which keeps the paint circulating to and from the spray gun. With a circulating heater, more accurate heat control can be maintained. Because of the critical viscosity action of lacquers at high temperatures, it is also generally advisable to use circulating heaters for lacquer.

Heating Air for Spraying; Heat and Electrical Safety

Heating the air is beneficial for synthetic spraying when the air comes to the spray booth excessively cold in winter time. However, for lacquer spraying, heated air is not necessary. These facts are from a report by the Hercules Powder Co., issued after many months of investigating the hot spraying of lacquers.

It is important to consider safety of construction when selecting a paint heater. Obviously, when paints or lacquers are to be channeled through an electrical device,

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FOR APPLYING HIGH SOLID CONTENT LACQUERS AND SYNTHETICS AT ELEVATED TEMPERATURES

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One Coat Finish

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- SAVES MATERIAL
- ELIMINATES BLUSHING AND BLOOMING TROUBLES
- CUTS REJECTIONS

The THERMATIC Spray Unit heats the material being sprayed to the proper temperature required and maintains constant circulation of the material for perfect finishing results. When sprayed hot, material levels out to a smoother, more uniform finish equal to two or more coats by ordinary methods, since a greater film thickness can be applied without danger of sagging. Fully dependable and fool-proof, with every conceivable safety factor BUILT-IN.

CONSTANT CIRCULATION

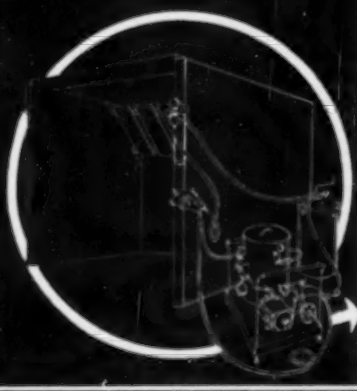
Assures minimum temperature drop at the Spray Gun and prevents overheating of the material being sprayed.

EXPLOSION PROOF

All Electrical Equipment is explosion proof to ensure maximum safety — always an important factor with M & E Design Engineers.

FULLY AUTOMATIC

Temperature range is adjustable from 100° to 200° Fahrenheit and automatically maintains the desired temperature.



The THERMATIC Spray Painting Unit can be adapted to any standard spray finishing system as illustrated. Easy to install . . . Simple to operate.

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FLORESCENT FIXTURES
GIVE
BRIGHTER LIGHT
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SYNTHETIC ENAMEL

- Assures depth and sharpness of gloss.
- A white that stays white; gives full hiding in one spray coat.
- Colors remain clean and natural looking.
- Excellent adhesion to most metal surfaces and bakelite.
- Sets dust-free in less than 10 minutes.
- Bakes to full hardness in 15 minutes at 300° F.

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extra caution must be used, especially since the paint is heated. It is advisable to select only a paint heater that has been approved by some independent laboratory. It is not sufficient that simply some of the electrical wiring be enclosed in the approved explosion-proof way. The entire device, as a whole, must be completely explosion-proof, and it should comply fully with the electrical code for Class 1, Group D installations.

There is no danger in simply heating paint to the temperatures used for hot spraying. Some people fear spontaneous self-ignition at 200° F. This fear is incorrect, as self-ignition cannot be induced at temperatures below 500° F.

Use Paint Formulated for "Hot Spraying"

Any concern wishing to adopt hot spraying should obtain the full cooperation of its paint supplier in making whatever adjustments are necessary. Generally speaking, the adjustments required for synthetics are simply in the solvent addition. In the case of lacquers, it is better to have them formulated from the very beginning for hot spraying. It is seldom satisfactory to take a standard material and adjust it for hot spray by juggling the solvents used therein.

Important progress has been made in hot lacquer formulations which make hot spraying of lacquers a definite success. In retrospect, we now realize that many of our previous attempts to spray heated lacquers failed because the lacquer manufacturer did not know how to make a lacquer well suited

to hot spraying. In the final analysis the paint heater is simply a device to heat paint to some given temperature. The results obtained depend, to a great extent, upon the formulation of finishing material.

Probably the greatest benefits that we will derive from the hot spray process will come in the near future, as paint manufacturers become more and more experienced in hot spray formulations. This is such a new phase of operation for the vast majority of paint chemists that additional information must be acquired before we can say that maximum benefits of hot spraying have been achieved.

Most of the present attempts in hot spraying are with formulas that were designed for room-temperature application. Occasionally, purely by accident, we encounter a formula that produces truly marvelous results. After the chemists have sifted out information acquired through experience over the years, we may be able to duplicate these marvelous results consistently. The entire finishing industry will then operate on a much higher plane.

A super-tough, super-beautiful automobile finish is just one of thousands of super-protective finishes which scientists of the paint and finish industry have perfected, for your benefit.

The Arco Microknife, for testing scratch hardness and adhesion of paints and other coatings, is announced by Henry A. Gardner Laboratory, Inc., Bethesda, Maryland.

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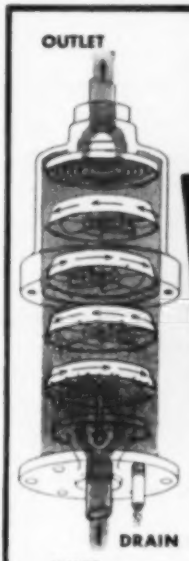

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Four multi blade rotors revolve at high speed in opposite directions under impact of air movement through non-aligned rotor spaces. Moisture, dirt and other foreign matter which collect on rotor blades are thrown out of air stream by centrifugal force to side of housing and pass into drain.

For paint and lacquer spraying, ceramic, sand blasting, air cleaning, etc. Easily replaces less efficient baffle type devices. Tell us details of your problem when you write for a catalog.

CAPACITY RANGE: AS LOW AS 7 CFM TO 17,000 CFM.

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THE Nash AUTOMOBILE FINISH

Works Manager of Nash Motors, Body Division, Nash-Kelvinator Corporation, tells how bodies are cleaned, rust-proofed, primed, baked, wet sanded, dried and cleaned again, painted in color and baked for an attractive finish.

By John Wieland

FOR CONTINUOUS road performance, an automobile must be mechanically sound, based upon correct engineering principles. Modern design and styling are factors that influence every buyer's selection, but the finish on the car is what the public sees at close range. How well this finish will stand up under all weather conditions, over a period of time, depends primarily on the surface preparation of the metal, and the degree of protection provided at welds and joints where rust may start its destructive work.

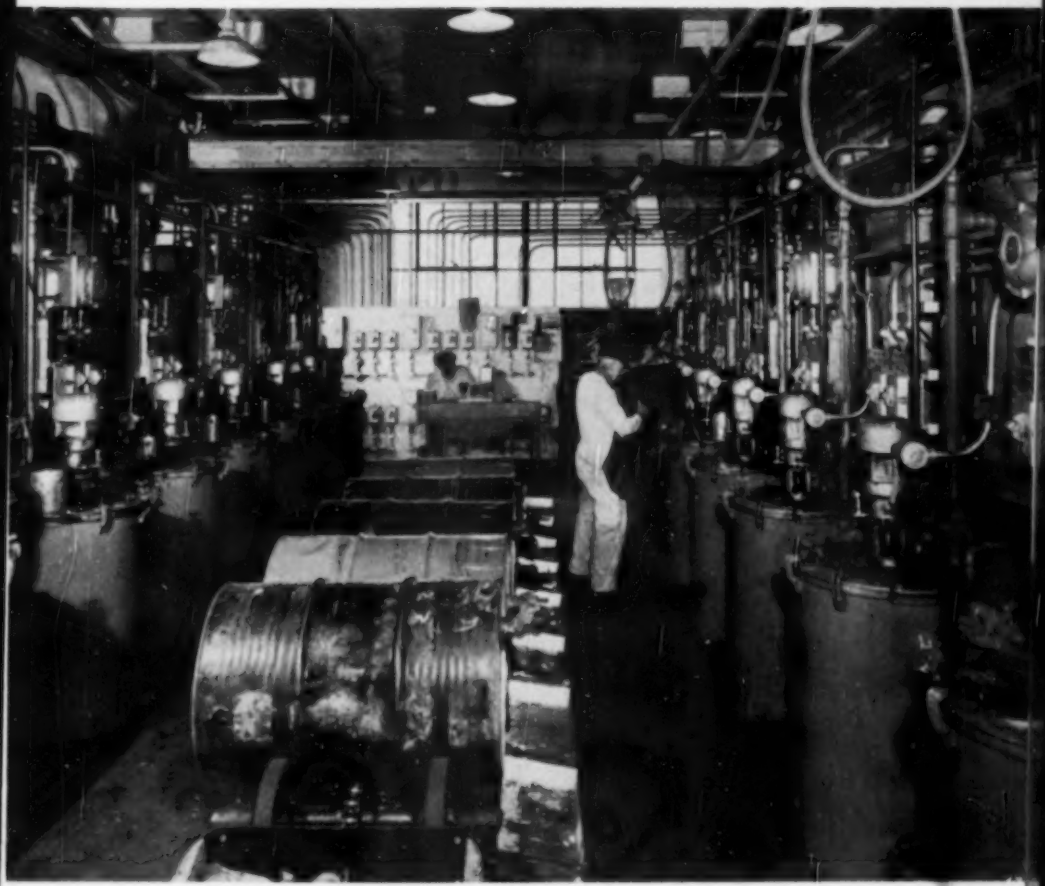
Of course, the correct application, curing and handling of all primer and top coats are important, but these protective and decorative coatings would be of only temporary value if the metal body were not thoroughly cleaned, rust-proofed, and protectively treated before any finish material is applied.

How Nash Bodies Are Cleaned and Protected

We employ two types of conveyors. One is an overhead monorail 3785-ft. in length with hooks spaced 18-ft. apart; it is driven through a variable-speed drive at a speed of 16½-ft. per minute. This conveyor carries bodies through the metal washer, rust-proofing, insulating, prime coat, baking, wet sanding and drying operations.

The top coat conveyor—1048-ft. in length—is a double line floor type, with carriages spaced on 18-ft. centers. It is driven through a variable-speed drive at a speed of 8¼-ft. per minute. Identical operations are performed on each line.

Bodies entering the finishing department are suspended from the overhead conveyor; they are spot cleaned with mineral spirits applied with hand brushes just before they enter the 5-stage metal washer. To expedite the effective drainage of cleaning and rinsing solutions from bodies, the bodies are tilted after each of the five stages, and also as they leave the washer before going into the dry-off oven; and again in the dry-off oven. *(To page 32)*



View in the finishing materials supply room from which coating materials are pumped through pipe lines to spray booths in the plant.

In this room sixteen 65-gallon mixing tanks are at floor level, and 16 supply tanks are mounted on a deck directly back of mixing tanks. All of these tanks are used for top-coat color enamels. Two 120-gallon tanks, one for mixing and one for supply, are used for prime coat material. Each tank has a power agitator for stirring its contents.

To handle drums safely and easily there is a traveling electric hoist supported by an I-beam crane which travels the length of the room. By this means all mixing tanks can be readily serviced directly from material drums.

In the center of the room, power rollers are available for rolling as many as eight drums of material at a time. This rolling action gently agitates the enamel and puts it in excellent condition to pour into the mixing tanks.

Enamel is pumped out of the supply drums under 30-lbs. pressure, and returns through the circulating system at 10-lbs. pressure. All enamel in the pipe lines passes through filters before it is returned to the supply tanks.

In the first stage a hot alkali cleaner, with emulsion added, is sprayed over the bodies at 25-lbs. pressure. This treatment is followed by a hot water rinse at 150° F. In the next stage a rust-proofing solution is applied at 130° F., followed by a cold water rinse. In the last stage a chromic-phosphoric solution, heated to 140° F., is used to "stop" the rust-proofing action and to slightly etch the metal surface.

All solutions in the metal washer are titrated (tested and measured) every hour so that proper strength levels can be maintained at all times. This is highly important, for a weak cleaning or surface treating solution may be the real cause of a failure in the finish later.

Following the wet-cleaning and rust-proofing treatment the automobile bodies are dried as they pass through an indirect gas-fired oven wherein they are subjected to a heat of 350° F. for 12 minutes.

Before the car body is partially assembled and before it even reaches the finishing room, all surfaces which are to make metal to metal contact are coated with a welding primer, and all concealed channels are spray coated with this same primer. If they were left untreated, it is in these places where rust would start and creep along to the outside finish.

Insulating, Sealing, Cleaning; Reinforcing Coats Applied

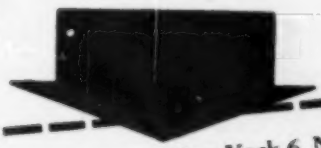
Upon leaving the dry-off oven, car bodies cool as they travel along by conveyor. Along this line, drain holes in the car body floor, used to facilitate draining of metal cleaning and rust-proofing solutions, are plugged with rubber buttons and plugs, and all joints are sealed with an asphalt material.

Insulating pads are placed in the rear compartment, and a black asphalt, with cork added, is applied by hand brush to wheel housings, floor and cowl front. We prefer brush application to spraying for this particular material because brushing eliminates a subsequent cleaning of any adjoining outside surfaces to remove overspray.

Next the bodies are spot cleaned with mineral spirits and blown clean with compressed air. Primer is blown into the joint above the drip mold, and the excess is brushed out the back end of this mold. This treatment is followed by a reinforcing coat of primer sprayed on the curved sections of the roof above the drip mold and around all window reveals. These are places where the finish generally shows first signs of wear. *(To page 34)*

Car body suspended from overhead conveyor passing through first stage of the metal cleaning setup. All solutions are sprayed from the four sides of this washer.

CHECK the Soil
CHECK the Metal
MAIL the List



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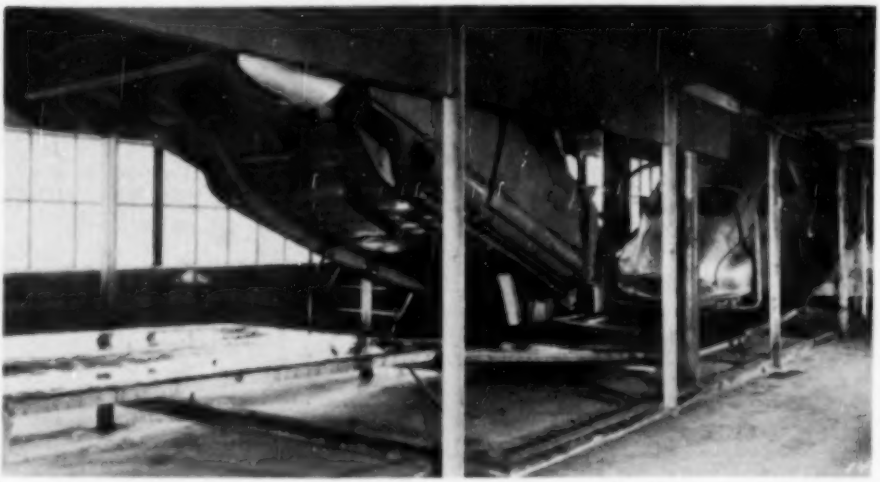
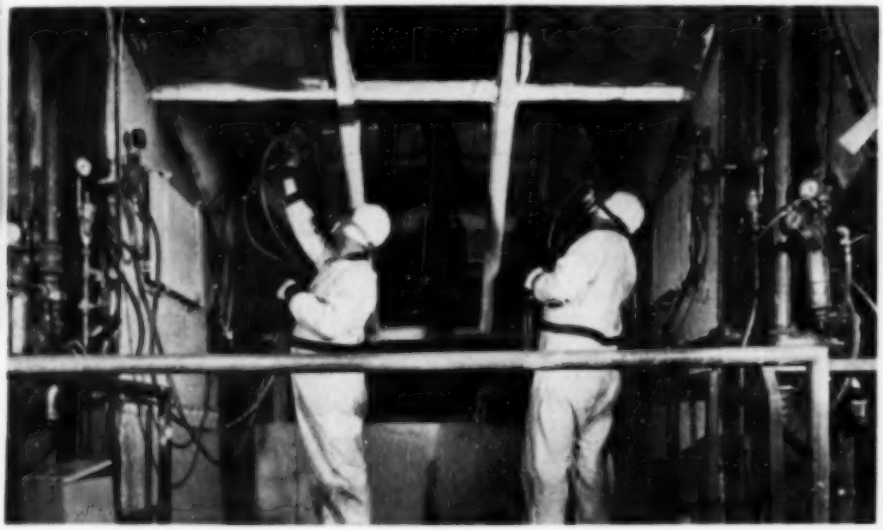
INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE

Just before bodies enter the prime coat spray booth they pass over an underbody spray booth. Here an automatic reciprocating spray gun applies a coat of primer to the under-body surfaces. This is followed by two men spraying in a pit booth to coat the almost inaccessible places to insure complete coverage. *(To page 36)*



This dip in the conveyor expedites the draining of cleaning and surface treating solutions.



These spray operators are hand spraying the almost inaccessible places of the under-body. Their work supplements an automatic spray setup which coats the main under-body surfaces.

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NEILSON CHEMICAL COMPANY

2682 Tecumseh Rd. Windsor, Ont. | 6562 BENSON ST., DETROIT 7, MICH. | 3411 Union Pacific Ave. Los Angeles 23, Calif.

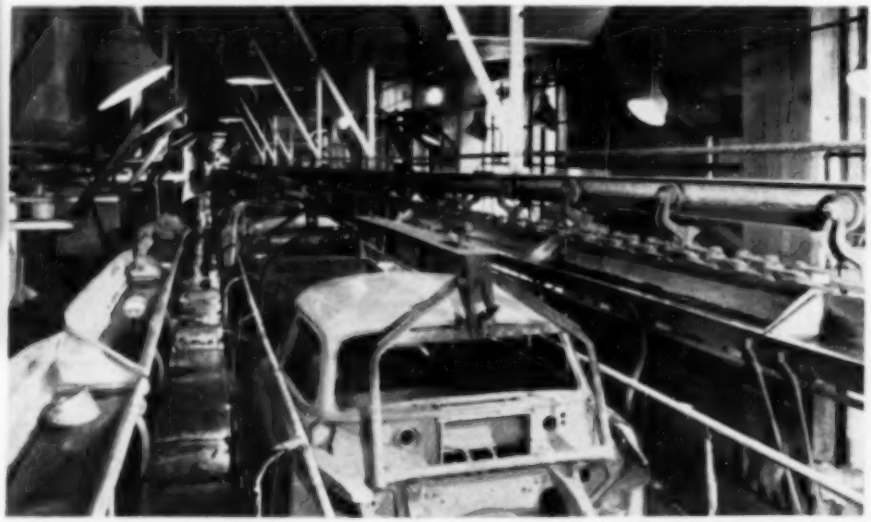
The prime coat spray room is pressurized. Filtered air—240,000-cu. ft. of it per minute—enters the room. Exhaust fans remove 231,-000-cu. ft. of air per minute. In the prime coat booth the inside and outside body surfaces are given a double wet coat of oil-base primer. A flash (air dry) period of two minutes is allowed between coats. The viscosity of this primer is 18 seconds at 75° F., measured by a No. 4 Ford cup. It is applied with 90-lbs. atomizing pressure and 30-lbs. fluid pressure. The prime coat is baked for one hour at 260° F.

As car bodies leave the prime bake oven they pass through a cold water mist spray to cool the metal before they enter the wet sanding deck. All outside metal surfaces are hand sanded with No. 360 wet-or-dry sandpaper, using water as the sanding liquid. The curved contour of a modern automobile body offers such a relatively small area that is adaptable to machine sanding that we do the entire job by hand to avoid any serious cut-throughs of the prime coat, to expose bare metal. After the bodies are washed with water, they enter a dry-off oven where they are dried for 28 minutes at 250° F.

Top Coat Enamel Is Applied and Baked

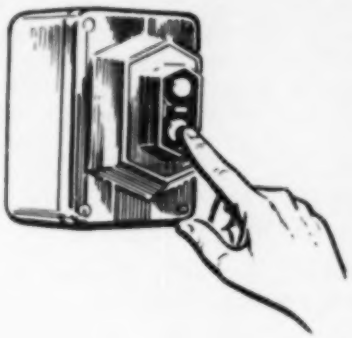
Leaving the dry-off oven, bodies cool as they travel for 15 minutes to the transfer point. Here they are removed from the overhead conveyor and placed on carriages which are propelled on two lines of floor-type conveyor.

The top-coat spray room is also pressurized; the intake of filtered air is 274,800-cu. ft. per minute. During cold weather this air is



View along the wet sanding deck where all outside body surfaces are wet sanded by hand. The entire deck is well lighted to insure complete and proper sanding of body surfaces.

Push-Button Painting...



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- No other automatic spray method is so versatile with so little set-up time, *paints a variety of sizes and shapes* through the same booth, on the same line.
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heated. The exhaust fans remove 268,900-cu. ft. of air per minute. Inside this pressurized spray room, the bodies are brushed around door jambs, inside the trunk compartment, and over the entire outside. Then the complete body is carefully tack ragged.

Spraying Synthetic Enamel; Flash Drying; Baking

In the first two water-curtain spray booths the inside of the trunk compartment and the door jambs on both sides are sprayed with the required color of synthetic enamel. In the second two booths the first wet coat of enamel is sprayed. After a 5-minute flash period, the second wet top coat is applied in the third two spray booths. Two operators work in each booth.

Top coat enamels are used at a viscosity of 24 to 28 seconds (depending on color) as measured by a No. 4 Ford cup, at a temperature of 75° F. Atomizing pressure is 90-lbs. and fluid pressure is 25 to 30-lbs., depending upon the color of the material.

After the second top coat of enamel is applied, bodies travel for a 7-minute flash period before they enter the indirect gas-fired convection oven where the finish is baked for 55 minutes at 250° F. Final inspection follows under a battery of powerful fluorescent lamps which are set at the proper angle to direct light rays on the upper car body and reflect light on the lower car body from the white painted floor on both sides of the conveyor.

Operator spraying top coat of synthetic enamel in a water curtain booth in spray room.

Information on Solvents; Where to Get It

SINCE THE IMPROPER handling of solvents may lead to fire or illness, it is important to be well informed about the liquids in use in the plant or shop. Information on the properties of the solvents employed and the safety of solvent-using processes may be obtained from a number of organizations and agencies.

Manufacturers are interested in preventing solvent accident, and are therefore a major source of information on the properties and correct handling procedures for the chemicals they produce. In many cases, the solvent distributor can supply the necessary information, or can direct questions to the manufacturer.

The Manufacturing Chemists' Association, to which solvent manufacturers belong, publishes detailed Safety Data Sheets on a great many products and these may be purchased from its Washington, D.C., office. The National Safety Council, which has its headquarters in Chicago, is another organization that publishes data sheets on the safe use of various solvents. The National Fire Protection Association, in Boston, Mass., publishes standards and other literature on the handling of flammable solvents.

There are also various governmental industrial hygiene agencies which can supply information on solvents and solvent processes. In addition, these agencies can supply various services, such as a check of the solvent process, a survey of ventilating equipment, examination of employees for symptoms of solvent exposure, and assistance in planning a safety program. In general, these services are available without charge.

Literature and data on health aspects may be obtained from the Industrial Hygiene Division of the U. S. Public Health Service, which has its headquarters in Washington, and also has District Offices throughout the country.

State agencies also publish literature and render the services described through State Bureaus of Industrial Hygiene. These are located in the State Department of Health, except in Massachusetts and New York, where they are part of the Labor Department. A number of cities have municipal hygiene departments which can render much assistance.—*Safety Research Institute, Inc.*

Wilkinson Equipment Co. Will Distribute Graco Products

The Gray Company Inc., Graco Square, Minneapolis 13, Minn., announces that Wilkinson Equipment Co., 6958 S. Wentworth, Chicago 21, Ill., has been appointed distributor for the Graco Paintmaster Spray-Gun Supply Pump and the Graco Fast-Flo air-operated transfer pump for industrial materials.

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LUMINESCENT PAINTS

THEIR USE AND POSSIBILITIES

By P. C. BARDIN
Associate Editor

LUMINESCENT paint or, as it is more often referred to, "luminous" paint, is a term sometimes misused to describe any paint that emits light and color in apparent darkness. Luminescent paint may be properly defined as a coating composition that has the property of emitting light without heat. True luminescent paints may be classified in three distinct types, namely:

1) *Fluorescent paint.* The pigments of fluorescent paints are harmless, synthetic, inorganic chemicals capable of being activated by "black light" or near ultra-violet rays (3200 A to 4000A) and they emit useful visible light in the dark as long as they are exposed to these invisible rays. Within the past few years fluorescent paints have been produced which exhibit unusual brilliance in sunlight and clouded light—and even under ordinary incandescent light as well as under ultra-violet rays.

2) *Phosphorescent paint.* Pigments of phosphorescent paints are also harmless, synthetic, inorganic chemicals. These pigments have the property of glowing in the dark after exposure to near ultra-violet rays (black light), daylight (either sun or clouded light), or light from incandescent or fluorescent lamps. The afterglow lasts from a few minutes to 10 or 12 hours or longer, depending upon the base materials and degree of excitation. Exposure to the light source, with consequent afterglow, may be repeated again and again without detriment to the pigments.

3) *Radioactive self-luminescent* paint. The pigments of this paint are composed of a synthetic, inorganic chemical mixed with a radioactive substance which continuously excites the inorganic chemical to produce a continuous glow without exposure to any outside source of energy. The life of the glow is dependent upon the life of the radioactive material. The gamma rays from these radioactive materials are, under some conditions, considered to be a health hazard.

Retro-reflective paint. Pigments of this paint are mixed with glass beads, chips or buttons. It cannot be classified correctly as luminescent paint. When this paint is exposed to the direct rays of the sun or to an incandescent light, the light is reflected back in the direction of its source. This paint does not constitute a light source in that it does not emit light as true luminescents do. This type of paint is generally used for roadside signs and traffic markings. Automobile headlights furnish the light to make the painted areas visible.

No discussion of radioactive self-luminescent nor retro-reflective paints will be included in this article. Luminescent dyes for coloring fabrics will be omitted also.

The term luminescence may be applied to either fluorescence or phosphorescence. For all practical purposes the principle involved is simply the excitation of certain molecules in the pigments of the

---

The picture on opposite page shows murals done in fluorescent paints at Henrici's "Fantasy Room" in the Merchandise Mart at Chicago, Illinois. James F. Eppenstein and Raymond Schwab were the architects; Felix Ruvolo did the murals. Photograph, courtesy of Sampson Chemical & Pigment Company.

base material by an outside light source which causes them to emit light in the dark. In the case of fluorescence this emission continues only during exposure to ultra-violet energy, and ceases altogether upon removal of the outside light source.

In the case of phosphorescence, light from an outside light source is absorbed by the pigments and, due to certain molecules continuing in a state of activation after removal of the outside light source, the emission of light continues, although at a diminishing rate of output, for a period of time ranging from a few minutes to several hours.

Pigments Used in Luminescent Paints

The pigments used in most luminescent paints available today consist of zinc sulfide, or a combination of zinc and cadmium sulfides, or calcium and strontium sulfides. These inorganic compounds are used instead of organic materials because the latter are more or less unstable and inclined to fade when exposed too long to daylight, with subsequent loss in their power to luminesce, and because no known organic compounds have phosphorescent properties.

These inorganic materials are exceptionally pure chemical compounds, which require some impurity in the form of some other metal, such as copper, bismuth, silver or manganese, to be added in minute controlled quantities as an activator to provide the pigments with luminescent properties.

As the luminous efficiency of phosphorescent pigments decreases in direct ratio to their fineness,

Above: Lights on. Below: Lights out.
Photo, courtesy of The New Jersey Zinc Co.

they are incorporated into paint preferably by stirring. This is directly opposite to the usual paint-making procedure where pigments usually are ground as finely as possible.

(To page 44)

CUT SPRAY PAINTING COSTS

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Since the grains of phosphorescent pigments are not less than 0.1-mm. diameter, they formerly presented a problem in suspension in the finished paint. This has been overcome to a great extent by the addition of suspending agents, such as zinc palmitate or aluminum stearate. For spray application the suspension problem is not so serious; however, for brush application greater care must be exercised in formulation to keep the pigments thoroughly mixed during any prolonged periods of aging on the shelf.

It should be emphasized at this point that fluorescent paints do not present all of these problems. The pigments in these paints may be ground to particle diameters of 0.0008-mm., without loss of luminosity, the reason being that these particles are not required to store up energy, as must phosphorescent pigments, to function properly.

The Afterglow Intensity of Phosphorescent Paints

In phosphorescent paint, the length of the afterglow depends upon several factors, namely: 1) type and amount of pigment, 2) vehicle in which pigments are incorporated, 3) length of exposure to light, 4) intensity of the exciting light, 5) the temperature, and 6) the area of the painted surface. It naturally follows that a pigment which has a long afterglow requires a somewhat longer exposure to an exciting light of equal intensity than a pigment of comparatively short afterglow; but in any case, the length of exposure need be only a few minutes.

Initial brightness of the afterglow, immediately after the exciting light is removed, is not the same for all types of phosphorescent pigments. Some types are much brighter than others.

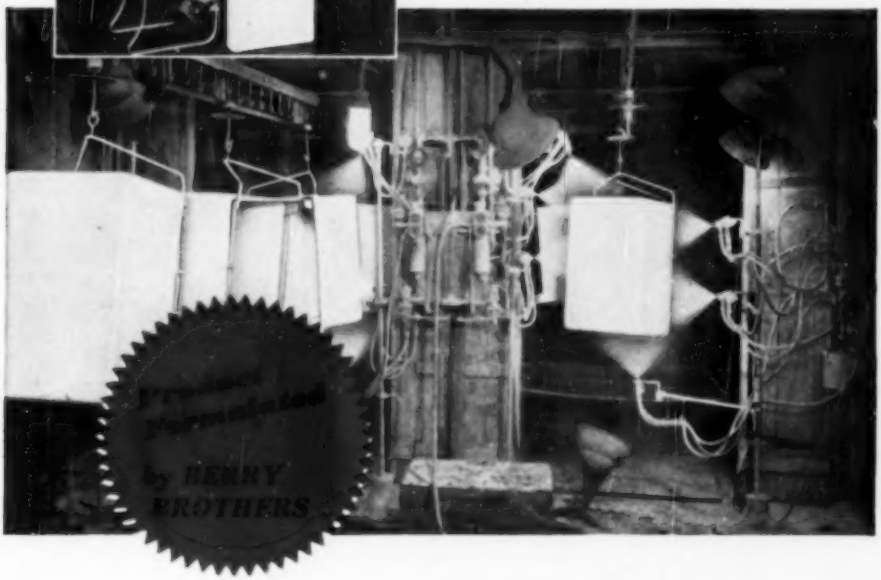
The afterglow of phosphorescent paint does not remain at the maximum brightness level over any given period of time. Just as soon as the paint is removed from exposure to the exciting light, the afterglow starts to diminish in intensity. As time passes, it becomes dimmer and dimmer until finally it is no longer visible, even to eyes adapted to darkness. Technically speaking, this diminishing brightness of phosphorescent paint is called "decay of the afterglow."

Durability of Pigments in Luminous Paints

Taken as a whole, zinc and cadmium sulfide pigments are stable. Calcium and strontium sulfide phosphorescent pigments however decompose slowly on exposure to water and acids, giving off hydrogen sulfide. But when properly protected against moisture and acids, these pigments can be expected to give good service for at least six months under outdoor exposure. Of course, a much longer life expectancy can be anticipated for indoor service.

Neither fluorescent nor phosphorescent pigments are affected by continual re-excitation. Some vehicles or binding materials, however may adversely affect the light resistance of some of the luminescent zinc sulfides, so it is desirable that this property be checked. Calcium and strontium sulfides are not thus affected. *(To page 46)*

Glistening White for Ironrite ... *Electrostatically*



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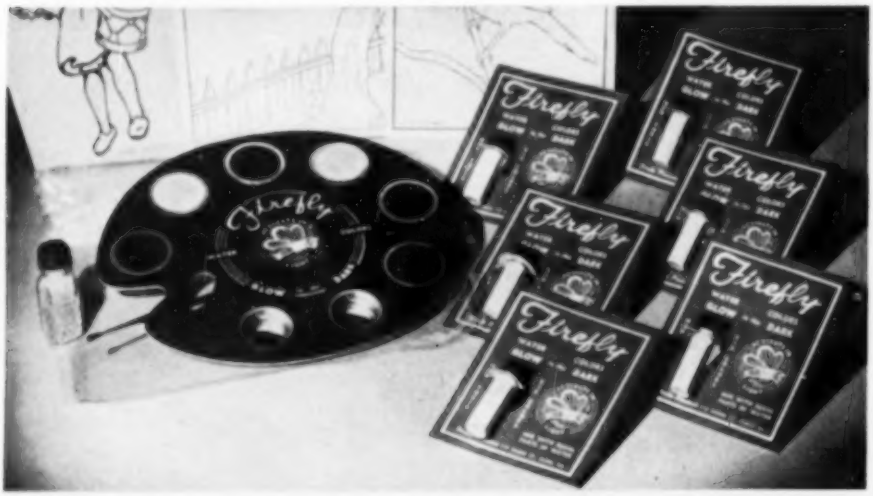
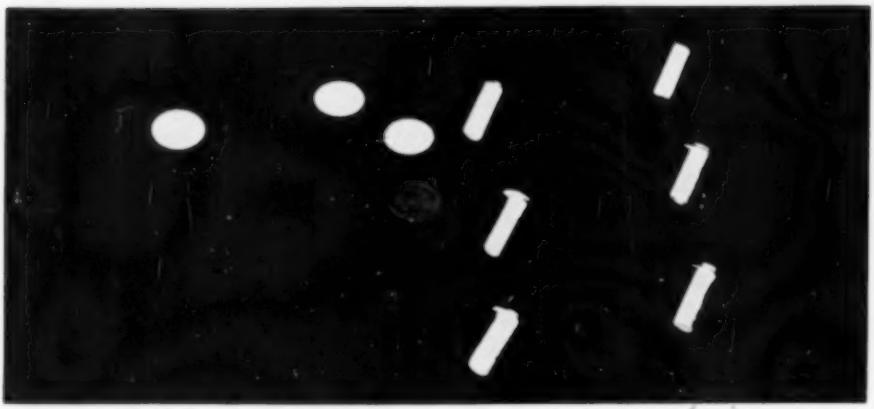
No definite life expectancy can be set forth for either fluorescent or phosphorescent pigments because of the many different formulations and the variety of conditions under which the paints serve. In some cases phosphorescent pigments have given satisfactory service for two or three years. The useful life span of fluorescent pigments depends upon formulation and length of exposure to ultra-violet rays.

Mixing and Thinning Luminescent Paints

There are definite limitations in thinning, mixing or blending of luminescent paints. *Ordinary solvents may not be used to reduce the viscosity of these paints* unless recom-





Part of an advertising display for a store window or counter, as it appears in the light (above) and in darkness (below). Photograph, courtesy of The New Jersey Zinc Company.

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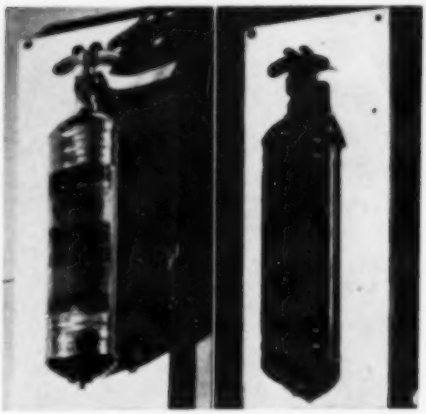
mended by the supplier. Before attempting to blend colors, the formulator should be consulted, for the vehicle or pigment of one paint may not be compatible with those of another. Should two such paints be mixed, the luminosity may be destroyed entirely, or the length of service may be seriously impaired. This applies not only in attempting to blend fluorescent colors to make a different color, but to any attempt to make the daylight and fluorescent colors coincide. In every case it is best to consult the formulator and follow his instructions.

So that you may better understand why these limitations exist, the following quotation provides an explanation:

"The usual type of a paint vehicle, a raw or processed linseed or wood oil, or a varnish made with these oils, cannot be used in phosphorescent paints. Such vehicles react with the phosphors causing 'livering,' evolution of hydrogen sulfide, and subsequent vanishing of the luminescence. Refined perilla oils appear to mix without trouble but, in general, the paint formulator is restricted to work with non-oxidizing vehicles such as solutions of natural or synthetic resins. Even these have a tendency to react with the sulfides and in order to prevent this J. Nussbaum recommends the addition of 0.01 to 1% of an oxide or nitrate of zinc, cadmium or magnesium or a sulphuric or sulphamide derivative of an aromatic hydrocarbon . . .

"The vinyl resins may be employed successfully although new problems are introduced by the rather powerful solvents needed for their solution and by the peculiar viscosity and drying characteristics of this group. The coumarone-indene resins, quite servicable in other respects, are inclined to yellow after some time. Best results are obtained with polystyrene and with polymerized esters of methyl and ethyl methacrylate, which appear to be free from all of the defects mentioned. Chlorinated rubber (Tornesite) has also been used in luminous paint formulation.

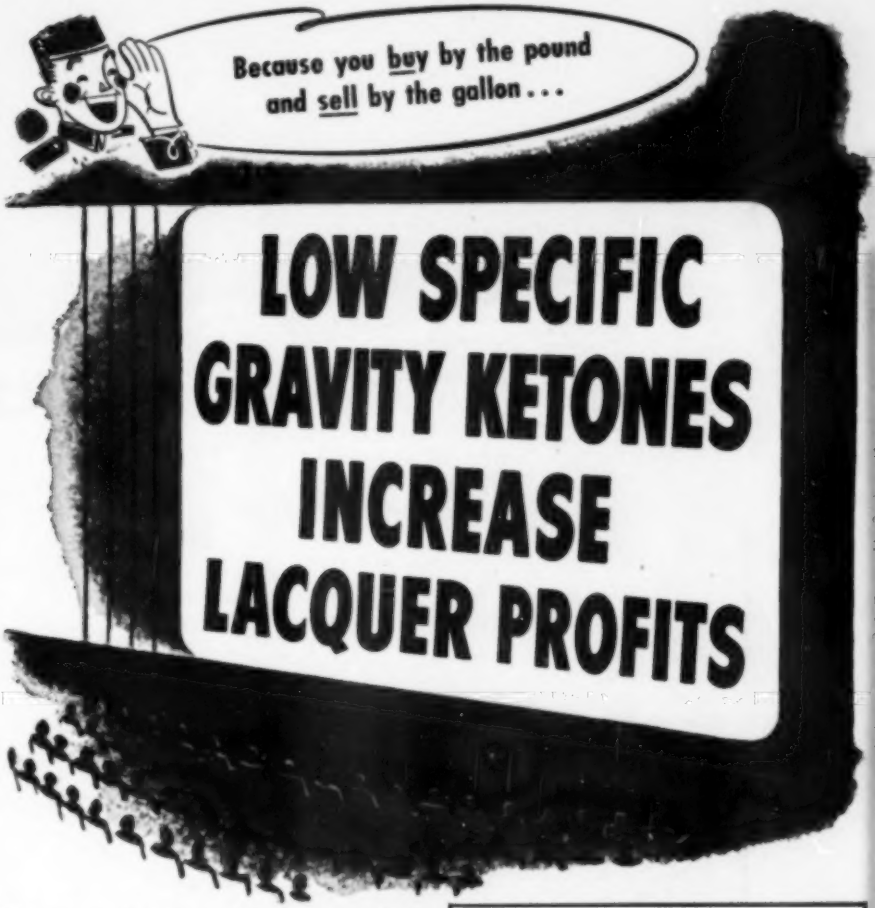
The usual solvents are low-boiling hydrocarbons like toluene or xylene if the paint is to be sprayed, or higher boiling compounds like butyl acetate or cellosolve if it is to be brushed."*



In either daylight or darkness this fire extinguisher can be seen because the panel that supports it is painted with phosphorescent paint. Photograph, The New Jersey Zinc Co.

*P. Pringsheim & M. Vogel, Luminescence of Liquids and Solids, 1946.

The second installment of this article, with more illustrations, will appear next month.—Editor.



Ketones have a lower specific gravity than other active solvents —this means *more gallons of lacquer sold* per pound of raw material purchased.

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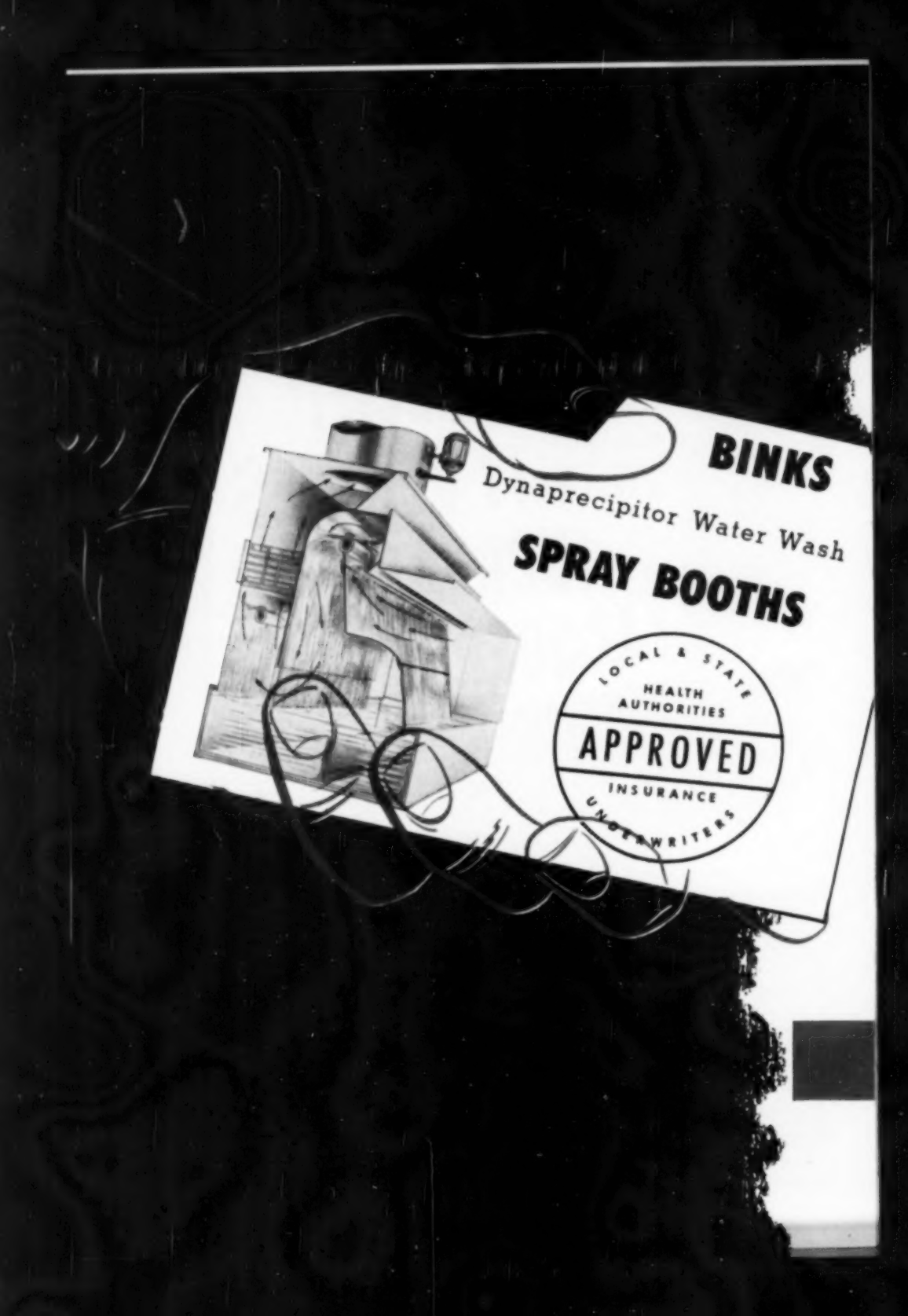
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There is no paint smell...air in the shop remains fresh... and the shop stays cleaner.

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HIGHLIGHTS OF
Silk Screen Process
CONVENTION IN CLEVELAND

The Question and Answer Clinic, features of automatic silk-screen printing machines from England and the U. S. A. for flat work; also machines that print on drinking glasses, jars, and bottles. Perfect hair line register of colors, fluorescent screen process paint, and paints for new flexible rubber products.

By J. I. Biegeleisen
Co-Author of "The Silk Printing Process"

"IT'S ABOUT TIME we all get together as members of an industry." This was the real sentiment expressed by practically all of several hundred individuals who came and saw the first annual convention of the Screen Process Printing Association International at Cleveland, Ohio, November 7 to 10, 1949.

Curiosity prompted me to look closely at the typewritten imprints which introduced the wearers of delegate badges. I spotted people from Mexico, Brazil, Canada, Cuba, and England, in addition to individuals from practically every state in the U.S.A. I recognized, by name, many owners of silk-screen shops whose reputation for workmanship is well known everywhere. I saw the leading producers of paints, silk-screen photographic supplies, silk-screen printing presses, stencil film, etc.

Now in regard to specific points of interest, let's take a glimpse at the business meeting and go on to the exhibits and demonstrations. A detailed report of the meeting is not important here. Essentially it concerned itself with some sensible program to initiate, to get the management of all shops to back up the Association, and also what promotion would most effectively tell agencies, buyers of printing, account executives and manufacturers just how versatile the silk-screen process printing is.

Question and Answer Clinic by Bert Zahn

Many of those who attended, thought the Question and Answer Clinic was well worth the trip to Cleveland. Mr. Bert Zahn, who conducted this part of the program,

looked over questions submitted in writing and called upon experts whom he spotted in the audience to come up to the "mike". Right back of Mr. Zahn a silk-screen job was displayed that would have convinced the most skeptical person in the printing field that the silk-screen process had come into its own. It was a huge metal display, about 6x8-ft., advertising the familiar Coca-cola bottle. The job was done in full color, with the photographic likeness that you expect from lithography. If you could have seen that Coca-Cola sign and numerous other jobs exhibited at the Convention, you would have been amazed.

Automatic Screen-Painting Machine from England

Crowds stared at the McCormick automatic silk-screen printer and kept the inventor, Mr. McCormick, who was operating the press, busy answering questions. Several times he almost had his hand caught in the machine, but the machine stopped automatically; it was probably more showmanship than careless operation. One of the features of the machine, Mr. McCormick explained, is that even an absent-minded professor can't get his hand caught between the metal bed and the printing stencil; the machine stops automatically when something like that happens.

The machine appeared easy to operate. It was explained that an operator doesn't need to have any skill other than the knack of feeding the machine fast enough.

The McCormick Printer doesn't look like a Rube Goldberg contraption. It is the most compact-looking machine I have seen; looks more like a well-designed printing press. It is evident that the builder of the machine was concerned not only with efficiency of operation but also with appearance, from the point of view of industrial design. This simplicity of design and construction also contributes to simpler make-readies, faster clean-ups, and more automatic adjustment of paint flow, squeegee pressure, bed contact, etc.

During operation the highly polished machine bed remains stationary. The frame that holds the stencil lowers itself to the bed, the squeegee scrapes process paint across the stencil and then returns with enough paint for the next print. The feeding bed is smooth and slants downward slightly, so the stock slips easily into the guides. Another feature of this metal bed is that the operator can screen-print thin paper successfully.

Fine Hair-Line Register of Different Colors Is Easy

During the convention, the machine was in operation, producing a one-color job. On display, right near it, was an unusually fine multi-color job produced in England for the Penrose Annual. The Penrose job was in six or eight colors and a close, critical inspection of the job revealed fine hair-line register. Hair-line registration is aided, Mr. McCormick explained, by the tautness of the silk. A special mechanical silk stretcher (sold with the press) automatically pulls the silk more taut on the frame than it is possible to do by hand, therefore the silk does not "give" when the

squeegee is pulled across it. The fact that the squeegee operates in one direction only also helps to make close registering possible.

The machine has three speeds 600, 900 and 1200 impressions per hour. It has a printing area of 20x30-in. and it will print on paper, metal, wood, plastic—in fact on any flexible or rigid stock up to ½-in. thick. It is suitable for stock cut into individual units used for posters, metal strips, table tops or tea trays, as well as for continuous reels of wallpaper, textiles, etc. It as explained previously, it can be permit the printing of two or more widely separated colors at the same time.

American Automatic Machine Prints 1500 Per Hour

An American-made machine, the General Screen Press, has several exclusive features. It is a bigger press, the feeding is entirely automatic, and its speed is 1500 sheets an hour. The screen is positioned level with the printing base. This means that paint, ink, dye or any fluid or plastic medium may be used.

Another feature of the General Press is that it employs a stencil frame that acts like a rigid wire inserted within the four sides of the hemmed silk; this means the elimination of bulky wood frames on which the silk screen is usually stretched. After a run is finished, the stencil can be stored away as a thin flat sheet, thereby saving considerable storage space.

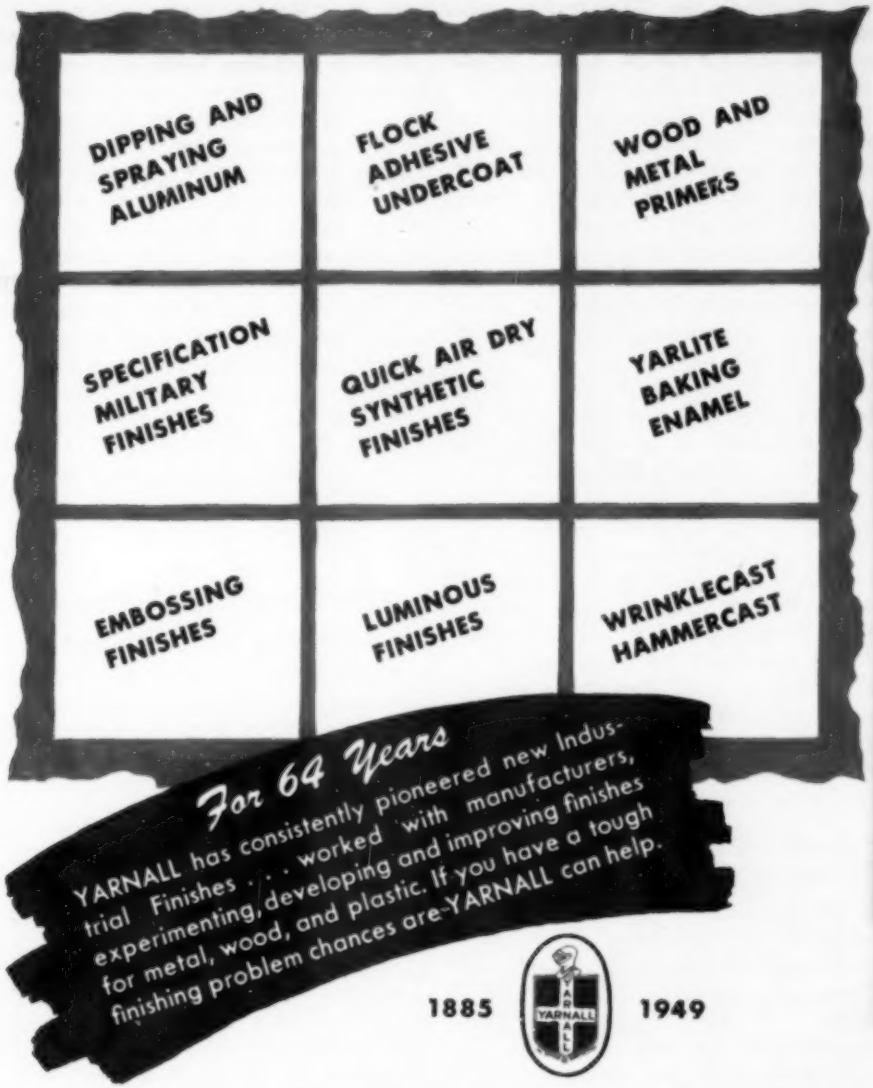
The machine is good for handmade or photographic stencils and, as a split-fountain arrangement to used for printing with lacquers, paints, enamels or, in fact, any medium of any viscosity including varnish, glue, paste, rubber cement, etc. The machine occupies 110x67-in. in floor space, is driven by a 1½-hp. motor, and weighs approximately 4000-lbs. The sheet size of the standard press is 22x30-in. Special machines can be made to print larger size work. This press is good for printing individual units or continuous roll stock. It cannot be used for stock heavier than 80 point board.

A Machine for Printing Cylindrical Surfaces

A machine, developed by the Dependable Compressor & Machine Co., is designed exclusively for printing on cylindrical or spherical objects. It is the type of machine you would want for applying decorations or identifications on jars, drinking glasses, bottles, containers of all sorts, metal or plastic ash trays, etc. The production is about 1500 to 1800 pieces per hour. The machine operates by means of compressed air and is semi-automatic. The manufacturer makes up special machines for unusual problems encountered in printing curved and cylindrical products.

Fluorescent Paint, 'Day-Glo"; Stencil Knife and Paper

A daylight fluorescent paint called "Day-Glo" is unlike any standard paint or ink you have ever seen. It is in a class by itself. Day-Glo is obtainable in paint, ink or lacquer, but it is expensive. However, in view of the fact that it should be used with discretion (too much Day-Glo on a poster or decoration becomes objectionable to the eye) it is worth the cost for the added ef-


DIPPING AND SPRAYING ALUMINUM
FLOCK ADHESIVE UNDERCOAT
WOOD AND METAL PRIMERS
SPECIFICATION MILITARY FINISHES
QUICK AIR DRY SYNTHETIC FINISHES
YARLITE BAKING ENAMEL
EMBOSSING FINISHES
LUMINOUS FINISHES
WRINKLECAST HAMMERCAST
For 64 Years
YARNALL has consistently pioneered new Industrial Finishes . . . worked with manufacturers, experimenting, developing and improving finishes for metal, wood, and plastic. If you have a tough finishing problem chances are-YARNALL can help.
1885
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1949

YARNALL PAINT COMPANY

Industrial Division

PHILADELPHIA • • • • PENNSYLVANIA

fect it produces. The fluorescent print, when exposed to daylight, lasts about 30 or 40 days. After that time, its potency diminishes. For interior displays however, the life expectancy is considerably longer. Colors now available include signal green, arc yellow, neon red, saturn yellow and fire orange.

A new type of stencil knife, developed by the Ulano Co., will be of interest to stencil makers. It is a precision instrument for cutting stencil film.

In one booth on the Convention floor, a new type of stencil tissue was exhibited. It is a good substitute for standard hand-cut film (less expensive) and has one advantage over standard films. Because it is a glue paper stencil, it is fine for printing with lacquers which usually dissolve even the so-called lacquer-proof stencils. Gumbo sheets are good for printing with any medium that does not contain water moisture. Because it is less expensive, it is excellent for large area printing such as wallpaper, 24-sheet posters, etc.

Process Paints for Rubber; Photographic S. S. Work

Special rubber paints are now available for printing on rubber goods such as floats, balloons, etc. There are paints for plastics of all kinds and for vinylite, textiles, glassware, metal, etc.

Photography has definitely entered the field of silk-screen printing. However, the surprising thing about photographic silk-screen work —at least insofar as the Convention showed—was that more progress has been made in single-color photographic work than in multicolor work. Films are available for printing 133-line halftones, woodgrain effects, 8-point type, etc. This phase of photographic silk-screen work has been highly developed. Four-color work was ignored.

At next year's show more new achievements in mechanizing the process will be in evidence. New developments in process paints and supplies will expand the horizon of this phenomenal printing method. Plan on attending next year's Show, if you are or expect to be interested in silk-screen process work. I'll see you then. In the meantime, if you have questions or problems to be solved, drop me a line in care of this magazine.

Chemical Dip Polishes Metal to High Luster

METAL PRODUCTS can be given a bright, reflective surface without mechanical or electrical operations by a new process recently developed by Battelle Institute, Columbus, Ohio.

The product to be finished is merely dipped into a chemical solution. When withdrawn a few minutes later, it is polished to a high mirror-like luster.

The chief merit of the process in production is its simplicity. Items of intricate form can be quickly polished by dip treatment. The surface obtained may serve as the final finished surface or as a base for subsequent plating. In practice, it has been found that chemical polishing—as the process is called—may eliminate from one to four or five production steps in the finishing of a metallic product. This means a reduction in finishing costs as great as 50%.

Chemical polishing is too new to have permitted discovery of all its po-

The Finishing Touch . . .

The touch that means perfection

From the cold, steel sheen of industrial tools to the warm, delicate glitter of a Christmas star . . . Stanley finishes have meant the difference between mediocrity and perfection in thousands of products.

A source of diversified finishing supplies, the Stanley Chemical Co. enters its twenty-sixth year with standards higher and objectives greater than ever in the past. This next year will mark a new high in Stanley quality, in the power of Stanley finishes to improve the appearance and strengthen the durability of your products.

Resolve now to let Stanley's chemists show you how "special finishes for special applications" can help you make a superior product in 1950. Write to the Stanley Chemical Co., East Berlin, Conn.

STANLEY

STANLEY CHEMICAL

INDUSTRIAL COATINGS

LACQUERS SYNTHETICS JAPANS ENAMELS

tential uses and its limitations. However, it has been used commercially on several products with success. In the case of a luggage lock manufacturer, the process has eliminated five buffing operations in finishing locks and hasps. A savings of about $65.00 per 1000 locks and hasps has resulted.

Metals that can be chemically polished successfully include brass, copper, nickel-silver, Monel, nickel, and aluminum. The action in each case is a true polishing action and the reflective surface obtained is in the polished base metal—not a deposited coating of a different metal.

The need for a simple immersion process for producing a reflective surface has been recognized for some time. Many metal stampings are of such intricate shape or such a size that they are not only difficult, but often impossible to polish by wheels. Chemical polishing makes it possible to finish intricate shapes with ease and without etching or other damage to the surface.

Since no electrical current is used in the process, chemical polishing offers great flexibility in the production line. Depending on the size and shape, the parts may be suspended from wires or supported in baskets. With some articles the polishing solution may possibly be used in revolving barrels. Where it is desired to move the work on a conveyor belt, spraying of the work with the solution is another possibility.

Chemical polishing baths are mixtures of acids, the basic ones being phosphoric, nitric, and acetic acids. They operate at temperatures from room temperature to 200°F. At the lower temperature, action of the bath is slower, and longer immersion time is required. Immersion periods vary from 10 seconds to 10 minutes, depending on the initial finish of the surface being treated, the final finish required, and the operating temperature of the bath.

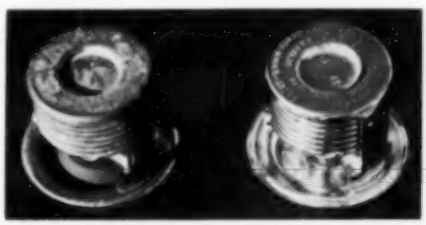
Following the polishing dip, the work is rinsed and dried. If it is desired to plate over the chemically polished surface, this may be done without further treatment of the surface.

The process has been used on picture frames to prepare the surface for subsequent nickel and gold plating.

Brass plates assembled with cadmium-plated screws have been chemically polished to produce a surface suitable for subsequent copper and nickel plating. Brass rings, which are normally bright dipped and tumbled prior to receiving a flash gold plate can be chemically polished in a basket to obtain a satisfactory finish in 90 seconds. Hundreds of rings may be polished at one time. Brass fireplace screen frames, after receiving a 2-minute chemical polishing treatment, can be color-buffed to a mirror plane surface, the treatment eliminating all other wheel polishing operations used.

Brass pocket flashlight cases, brass screws, brass compacts, safety pins, nickel laundry tags, nickel-silver clips used in the dental industry, Monel tubing and spinnings, pencil ferrules, and brass lincense-plate frames are other items that have been treated by the process to acceptable appearance.

Battelle Institute is one of the country's leading foundations for industrial research and education. It conducts research in chemistry, metallurgy, physics, fuels, ceramics, etc.



The automobile thermostat at the right has been dipped into a chemical polishing bath developed by chemists at Battelle Institute, Columbus, Ohio. The thermostat on the left has not been polished.

It pays...

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to a RANDOLPH salesman . . .

because he's selling the finish that's RIGHT for your product in color, protection, durability.

We quote from the letter of an on-the-ball purchasing agent to one of our salesmen:

"We needed a lacquer with these 4 guaranteed qualities:

1-lasting adhesion to difficult and ordinary metals
2-blush-proof
3-resistance to spotting-out conditions
4-perspiration resistance

We tried your clear metal lacquer #1185 and thinner #100A. The results? An increase in orders indicates that the saleability of our products was definitely improved by the use of this finish."

Let Randolph Supply the Exact Finish . . .

There is no finishing problem too difficult for our staff of expert technicians. Their advice is yours for the asking—cost-free. Try our consultation service—it's the easiest way out of that dilemma.

Randolph

PRODUCTS COMPANY

Carlstadt, New Jersey

DOPES • LACQUERS • ENAMELS • THINNERS

Have high production co

FOREMEN, SUPERVISORS, EXECUTIVE
problem involving costs, performance
"bug". . . write E. I. du Pont de Nem
Division, Wilmington 98, Delaware.

DEPEND ON DU PONT FOR BE

ts got you on thin ice?

Does this seem far-fetched? Well, perhaps. But high costs have many a production team feeling as though they were in this predicament.

If you are looking for ways and means to economize, you might do well to consider your finishing methods and materials. You'll discover that finishing costs involve a good deal more than the prices per gallon shown on your invoices . . . that, on the contrary, they often show up as large items when it comes to computing total end cost.

Why not make a breakdown of your finishing process? Take into account such factors as drying time, storage space, labor costs, percentage of rejects, and packaging operations. Frequently, such a breakdown reveals that substantial savings can be effected all down the line through the use of the *right* finish, *correctly* applied.

And for expert help in studying your finishing process, call on Du Pont. Today, thousands of pre-tested formulas under the trade marks of "Duco" lacquers and "Dulux" enamels are helping to keep manufacturers' end costs at a minimum.

If you have a finishing
. . or a tough technical
rs & Co. (Inc.), Finishes

R FINISHES

DU PONT

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

4

TYPES OF SYNTHETIC FLAT FINISHES TO CONFORM TO YOUR NEEDS . . . POCKETBOOK

DRYING SCHEDULE

- **FULL RANGE OF SHEENS** . . . from dead flat to gloss
- **NO DULLING OR CLOUDY FLATTENING AGENTS** added
- **A BEAUTIFUL RUBBED EFFECT** . . . will rub clean and clear
- **WILL EITHER AIR OR FORCE DRY**
- **OUR SUPERIOR PROCESS IN CHEMICALLY TREATING RESINS DEVELOPS A FINISH SO SMOOTH . . . YOU CAN FEEL THE DIFFERENCE**

1. **PERLAC SATIN FINISH** . . . out of the dust in 5 to 7 minutes . . . one coat looks and rubs like two coats of lacquer . . . liquor proof . . . water proof . . . won't haze or sweat back.
2. **PERFEX SATIN FINISH** . . . quick set . . . quick dry . . . water proof . . . liquor proof . . . full smooth body . . . won't haze or sweat back.
3. **PERFECTION SYNTHETIC FLAT FINISH** . . . water proof . . . liquor proof . . . beautiful rubbed effect.
4. **PERFECTION QUICK DRY FLAT VARNISH** . . . beautiful . . . rubbed effect . . . or rubs well . . . smooth.

PERFECTION PAINT & COLOR COMPANY

715 E. Maryland St., Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES

WATER-PROOF LIQUOR-PROOF

To Overcome "Oil Bloom" On Lacquer Finishes

THE INTERESTING and informative articles which appeared in January and May 1949 issues of INDUSTRIAL FINISHING seem to indicate that no real satisfactory method of eliminating the condition commonly referred to as "oil bloom" has been devised.

A new product, soon to be marketed and now known in the laboratory as Formula X10, has put an end to this problem wherever it has been tested. Here are some of the interesting, if not amazing characteristics of this material:

1) It quickly and easily removes the bloom from lacquered surfaces.

2) It easily polishes to a beautiful luster that restores the original brightness of the film.

3) It deposits a moisture-resisting film which, from all indications, becomes a part of the finish, thus actually adding to the finish. However, it is not visible to the eye.

4) It leaves a dry surface which, if not actually smoother, is as smooth as glass, and has a "feel" such as never before been obtainable. This is an amazing feature.

5) It does not readily fingermark but leaves that "dry" feel.

6) Any furniture that is finished to a fine luster will be immensely improved through the use of Formula X10 as a final operation.

I hesitate to use the word "permanent" in connection with any coating material or polish, but from tests thus far made this seems to be the nearest to a permanent solution of the problem yet to be originated.

This material is applied with less effort and time than any wax or other type of polish. It embodies a greater number of features than any product used for this purpose at the present time. It is more apt to reduce costs in your finishing department than increase same.

Every finishing expert who has tried this product has reported the same story: "The best thing I've ever seen." It won't make a Utopia out of your finishing room, but it should put an end to some of your last operation problems and, as I said before, furniture cleaned up with this material will give the manufacturer something heretofore unobtainable.—J. C. Hertstein (Research Chemist).

Porter-Cable Buys and Moves Sterling Tool Products

The Porter-Cable Machine Co., Syracuse, N.Y., manufacturer of Speedmatic and Guild portable electric tools, has purchased the manufacturing rights and facilities of the Sterling Electric Tool Products Co., Chicago, Ill., for the production of the Sterling portable electric and pneumatic sanders. Sterling's tool and production facilities will be moved to Syracuse, and Porter-Cable will resume manufacture of the Sterling Sanders locally.

The Sterling portable electric sanders are of the orbital-motion type used primarily for fine finishing. They include models designed for industrial use. These products have been widely used throughout the automotive, woodworking, and metal finishing industries, particularly in furniture manufacture. The newly acquired machines will be added to Porter-Cable's line of portable belt sanders to provide one of the most complete selections of finishing machines being offered today.

Several members of the Sterling Electric Tool Products Co.'s sales organization have been taken into the Porter-Cable Co.

The Porter-Cable Machine Co. will merchandise the Sterling Electric products through the facilities of its nation-wide sales organization consisting of district sales representatives in all U. S. market areas, and several thousand dealers throughout the country.

Hilo Presents Gold Watch to Hayes

On November 17, Carl J. Schumann, President of Hilo Varnish Corporation presented a gold watch to Joseph E. Hayes, commemorating his completion of 25 years with the corporation. Mr. Hayes has spent practically all of his business years with Hilo, and was recently appointed Assistant Credit Manager of firm.

Finishing Furniture
IN CANADA

A fast production setup which includes staining, filling, filler wiping, padding and cleaning up; drawer coater; sealer and sealer coat sanding; synthetic varnish, oven baking, cooling, rubbing and polishing.

By Fred Boynton
Finishing Consultant

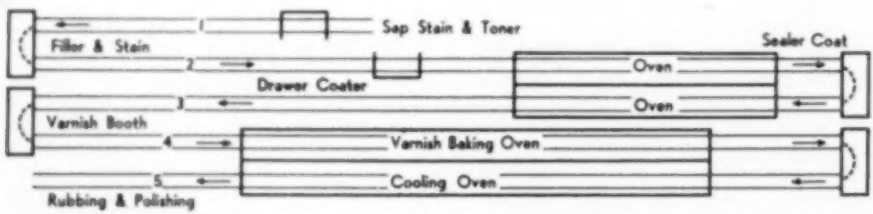
FURNITURE manufacturing up here in Canada, as in the United States, is undergoing a change. The trend is for better quality and lower prices.

Victoriaville Furniture, Ltd., Victoriaville, Quebec, manufactures bedroom and dinning-room furniture in the medium price range, and is enjoying an excellent business—chiefly on the basis of their superior finishes and attractive designs.

The concern has revamped its entire finishing setup. First a conveyor system was installed. Then came the testing of top coats and sealers. Finally, after several tests had been made on different materials, a low-bake varnish of the urea-alkyd type was selected for the top coat. A sealer with 50% less stearate than usual was formulated especially for this factory and it is working out satisfactorily.

Flat Bed Conveyors in Parallel Lines

The type of conveyor selected is a flat-bed, cross-slat conveyor, elevated 16-in. above floor level for working convenience. The several straight sections of conveyor run parallel to each other, as you will notice in the accompanying floor plan sketch. Referring to this drawing, conveyor sections 2 and 3 run at double the speed of sections 4 and 5 because they have only half the capacity of sections 4 and 5. The time required to complete the



Approximate plan view of slat conveyor lines No. 1, 2, 3, 4 and 5, spray booths and ovens.

finishing cycle is six hours. In other words, a piece of furniture starts in the white at a certain time and six hours later it is ready for rubbing and polishing.

Starting in the cabinet room, all veneers are treated with a commercial glue sizing liquid which serves as a foundation for the finish. Every finisher prefers a smooth wood surface to start with. It takes color better, and the finisher can put on a clean looking smooth finish that is clear and transparent. There is no smutty appearance, as on those surfaces that are not smoothly sanded before finishing begins.

Smooth Wood Surfaces for Fine Finishing

The color pigment in wood filler and wiping stain becomes imbeded in a poorly sanded wood surface and is difficult, if not impossible, to wipe off clean. This condition is likely to cause a dirty streaked surface. Sanding a sealer coat that has been put on an improperly sanded surface is also difficult, for if the sealer coat sanding is performed properly the thin coating will probably be cut through, thereby damaging the stain that is underneath. Sanding is the remedy for this condition, but it is not satisfactory when a clear color is desired.

Staining; Sap Staining

Stain and sap stain operations take place in the cabinet room, the starting point of the finishing conveyor. When furniture reaches the third floor by conveyor, filler is sprayed on walnut and mahogany veneers. Wiping stain is next sprayed on birch and birch veneered parts.

Filler Is Sprayed, Padded in and Wiped Clean

The ideal way to apply wood filler is to spray it from a container in which some kind of agitatior or stirrer is operating to keep the filler pigment stirred up and well mixed with filler vehicle. On a surface properly sprayed with filler, there are no heavy or thin streaks—just a dependable coat of uniform thickness.

The preliminary or "rough" wiping of the filler coat takes place just after spraying, while the filler is still wet. The filler is worked into the wood pores with a circular hand wiping motion. The next operator uses a portable rubbing machine fitted with felt pads to pad in the filler—or, if a machine is not available, a leather mitten over the operator's hand, using a short circular rubbing motion, will serve to produce a good job.

Filler will go into the wood pores much easier when it is in a semi-liquid state than when it is in a paste form. It makes no difference whether the pores are V-shaped, concave or round; they will be filled if the proper filler is used and if it is properly padded into the pores. In preparing filler for walnut and mahogany we stir in 10-lbs. of quick-drying paste filler to enough naphtha to make a gallon of filler. To rough wipe the wet filler, any course material may be used, just so long as it does not mar the wood surface. Suitable wiping materials include sisal, jute, sea grass, burlap and fine excelsior. Wiping cloths that are not too porous are best to clean up the work after the rough wiping. *(To page 66)*

Shading, Toning and Oven Drying

After the filling operation has been completed the work moves to a spray booth located 15 minutes ahead of the drying oven. Any shading or toning that may be necessary is done at this point; the drawer coating is also sprayed here. It is best to do the shading and toning over the filler, using an NGR stain. Too often the use of spirit type shaders and toners will cause cracking and peeling if these materials are applied over the sealer coat. The toning has 15 minutes to flash (air dry) before the work enters the drying oven. This preliminary air drying gives a much more satisfactory job. The filler oven is kept at a temperature of 125°F. (with 35% relative humidity) and the work requires 30 minutes to move through it by conveyor. The oven is 98-ft. long.

Sealer Coat; Oven Drying; Sanding; Tack Ragging

Upon leaving the filler oven, the work has 15 minutes time to cool off before it reaches the sealer-coat spray booth. Another 15 minutes is allowed for the sprayed sealer coat to set up before the furniture enters oven No. 2, which involves a 30-minute ride at 120°F.

The sealer coat is sanded while furniture moves along on the conveyor line—after adequate time has elapsed for cooling. Air-powered portable machines are used to sand all flat surfaces. The sealer coat is sanded down to a very smooth surface in preparation for the coat of varnish. A first class job of sealer sanding paves the way for a smooth varnish job—one that requires only a minimum of rubbing and polishing to produce a "plate glass" finish. This goes for lacquer top coats too.

Thirty minutes after the sealer is sanded—and after blowing off the dust and tack-ragging the surfaces—the work is ready for one coat of varnish. A medium heavy coat of urea-alkyd varnish is applied, the spray operator taking care to avoid heavy edges and excess overspray, as too much varnish

Spraying drawer coater on the conveyor line.

in one place will cause a dull rough surface. This condition (roughness of film) sometimes occurs on flat level surfaces, such as tops, for most all spray men like to lay on a heavy coat here in order to get a good looking job. This uneveness, due to an excessively heavy coat, will rub out or polish out, but it should be avoided for it is "excess baggage"; and any break in or de-

For High Production Sanding

Put the improved, lightweight, powerful air driven Mity-Midget to work for you. *Cut your sanding time 75%* . . . and improve your results. Special patented features make the Mity-Midget vibrationless, yet fast orbital action at 4000 to 6000 rpm assures a saving in finishing time. National has a complete line of sanding machines . . . both air driven and electric with orbital and straight-line actions. Apply production line methods to your finishing operations with a *National Sander.* Write today for details on the complete line, or see your local jobber.

The finest portable sander yet developed

NATIONAL AIR SANDER INC., Rockford, Ill.

Rubbing furniture tops with portable machine.

terioration of the finish will occur at these points, for they are the weak places in the film.

Urea-Alkyd Varnish Is Sprayed and Oven Dried

Urea-alkyd varnishes have proved themselves in the finishing room. One coat of this varnish is equal to two-coats-plus of lacquer. When a good urea-alkyd varnish film is properly cured and the right kind of sealer is underneath, you will have a tough film with excellent resistance to alcohol and weak acid solutions; and the film is waterproof. As for cold checking, well, urea-alkyd varnishes are used in Canada and no complaints have been made so far, on this score.

As stated previously, the sealer coat plays an important part in any wood finish. Improper adhesion and brittleness of film are sure to follow if too much stearate is in the sealer. I have experimented with several different types of wood sealers, but so far I have found none that was entirely satisfactory. The nearest approach was a patented wood primer. It worked very well on a small panel—in fact, excellent. Being of low solid content (about 6%) it did not work well in production, and raising the solid content would make its use prohibitive from a cost standpoint.

It is well to know something about curing urea-alkyd finishes. A 30-minute flash (air drying) period before entering the oven will save a lot of grief and will prevent bubbling and blistering of the film during oven baking. Also, the heat must not be excessive at the oven entrance; about 110°F. is sufficient. The curing time is 1½ hours at 140°F. One or more exhaust fans should be used, depending upon the length of the oven.

After the heat curing process is completed (on conveyor line No. 4) the work enters the conditioning and cooling oven on conveyor line No. 5. Before the furniture in process enters this last oven, all drawers are opened to permit complete cooling. Cool air is blown over the the work and after it passes through the oven, it is ready for rubbing and polishing. Time allowed for cooling is 1½ hours.

Mechanical Wet Sanding; Polishing; Wiping Off

The furniture trade in Quebec likes a lot of gloss on its furniture finish. All tops and fronts are rubbed and polished. First, the surface is cut down by wet sanding with No. 400 wet-or-dry sandpaper. Portable machines, powered with

SAVE *Time* AND *Labor* WITH PRINTEX VARNISH

Combines the working properties of Lacquer and Varnish

Now you can have, in one product, the important working properties of both a lacquer and a varnish. Printex is the result of long and exacting research at the Reliance laboratories . . . proved in large scale production for more than a year.

Look at these outstanding Printex features. We'll gladly send you additional information without obligation.

Varnish solids—lacquer speed.

One coat has build-up of two lacquer coats.

Sets out of dust in 15 minutes.

Air dries to rub or pack in 16 hours.

Force dries in 1½ hours at 125°-140° F.

Can be rubbed as soon as cool.

Clear, transparent—no blushing or blooming.

Withstands pressure packing—2 lbs. to square inch.

Water and alcohol resistant.

Sprays easily, smoothly and quickly.

Does not settle in package.

Supplied in gloss or dull lusters.

For additional information address 4732 Crittenden Dr., Louisville, Ky.

Rely on Reliance

RELIANCE VARNISH CO.
INCORPORATED
Affiliated Factories in
Louisville, Ky. • Brooklyn, N. Y.

compressed air, are used and the surface is cut down by wet sanding to the point where it is as smooth as a piece of plate glass. For fast-cutting, one part of paraffine oil and three parts of Varsol or Oleum spirits are mixed and used as the sanding lubricant.

After the surfaces have been wet sanded, the work is passed on to the polishers. Heavy air-powered machines are used for this job. The polishers use No. 7 compound to bring the surface up to the desired gloss. To accelerate polishing, a cloth about twice the length of the machine is placed under its felt pads and is moved across the surface until the compound starts to dry; the machine is then removed and the surface is wiped—but not too clean. A little rottenstone and cutting lubricant are applied to the surface and a clean cloth is placed under the machine; a few strokes across the top and you have a mirror-like surface.

The rubbed surface is wiped with soft waste and cleaned with a Duponol solution—using one ounce of Duponol powder to one gallon of water. To get better gloss and cleaning, the work is buffed with a lamb's wool pad, the machine running at 1400-rpm. The furniture is now ready for final inspection and hardware trim.

Careful selection of a finishing system to fit the plant and to provide adequate production will pay off for all concerned. It is also an excellent practice to buy quality finishing materials; you get what you pay for, and if cheap materials are used, you are sure to get a cheap looking finish, and trouble.

Bone White Finish

By Daniel Derogee

SOMETIME AGO I was called upon to refinish a bedroom suite which was supposed to have been finished in bone white. The man who originally attempted to finish this suite, started by filling the porous wood with a natural wood filler. After this filler had dried overnight, he proceeded to spray on a coat of white pigmented lacquer primer. This coat of primer was allowed to dry the proper length of time and was then thoroughly sanded with No. 5/0 sandpaper. Then a second coat of white primer was applied and allowed to dry overnight.

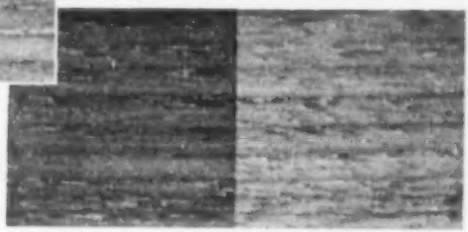
He then proceeded to glaze or antique over this primer coat and promptly ran into trouble. The full-strength dark glaze he was using "struck" into the porous primer and turned it a dirty gray color. It looked as if it had gone through a fire and had been smoked up. The more he tried blending the glaze with a brush, the worse it became. Finally he called it a day and gave up.

I was called in to do the job over. To produce a bone white or antique white finish is not too difficult if the proper methods are used. The first thing to do is to fill all porous wood with a natural wood filler, and wipe off the surplus. Let this filler dry overnight; spray on a coat of 21% solids lacquer sealer. Allow this sealer to dry from two to three hours; then sand the surface with No. 5 sandpaper. Spray on a coat of white pigmented lacquer primer. Allow this coat to air dry about four hours; then spray on a coat of white lacquer enamel. Allow this coat to air dry overnight. Lacquer enamel is used, because it is almost non-porous; it gives a hard smooth surface and prevents the glaze from striking in, as it would when a porous primer is used.

(To page 72)

There's a difference in Water White Lacquers . . .

Schaefer's Crystal Clear Water White Lacquer did not discolor when exposed to light.



Ordinary water white lacquers fade upon exposure to light.

Yes,

FOR COLOR RETENTION
ON LIGHT FINISHES . . . IT IS

CRYSTAL CLEAR
WATER WHITE LACQUER

It's a new, time tested material for preserving the original color of those beautiful grays, off whites, lime, pearl, ermine and all pale, bleached and decorative effects so popular on furniture of today.

THE SCHAEFER VARNISH COMPANY
Incorporated
15th and Magnolia **Louisville 10, Kentucky**

Now we are ready to antique. I prefer to use a dark brown glaze thinned about 25% with turpentine; this will produce the warm antique effect.

When glazing, care should be taken to avoid covering too large an area at one time, as the glaze may set before it can be properly blended. If, for instance, a buffet or dresser is being finished, it is well to antique one side at a time, finishing up with the top. After the glaze has been applied by brush, use a pad made of cheesecloth or other absorbent cloth to wipe the glazed surface almost clean, taking care to leave a little more glaze near the outer edges than in the middle.

The next procedure is to lightly brush across the surface until the glaze is evenly distributed or blended. For this work use a soft hair blending brush. As mentioned before, the middle should be wiped almost clean, leaving just enough on to kill that dead white appearance. Finally, using a pad made of No. 3/0 steelwool, brush lightly across the surface to remove any darker or uneven spots which may have been left after the glaze has dried overnight. Any remaining particles of steelwool are dusted off, and a coat of 21% solids rubbed-effect clear lacquer is sprayed on. If the furniture is to be hand rubbed, two coats of 27% solids semi-gloss clear lacquer should be sprayed on, with about five hours drying time allowed between the first and second coats.

L. E. Nykamp Represents A.F.S. Co. in Western Michigan

Allied Finishing Specialties Co. of Chicago, (industrial protective coatings) announces the appointment of Mr. L. E. Nykamp, 5407 Lake Shore Drive, Holland, Mich., as its sales representative in the Western half of Michigan. The appointment includes representation for Alabastine Paint Products which moved from Grand Rapids to Chicago early in 1949 and consolidated with the Chicago Bronze and Color Works, which manufactures all types of paint products.

Safety in Use of Solvents

INTERMITTENT or occasional jobs involving the use of volatile solvents require as rigorous safety precautions as continuous operations, if substantial quantities of solvent or periods of time are involved.

This was demonstrated recently in connection with the removal of grease from a conveyor belt. Brushes dipped in solvent in open buckets were used for the purpose, and the men doing the job had to bend forward to reach across the belt and thus bring their faces close to the surface being cleaned. About 10 to 12 gallons of solvent were handled in this manner in a period of about three hours. This procedure had been followed many times, on an average of once every three or four weeks, without apparent difficulty.

After one such session, however, when three men did the work two of the men became ill. One recovered in about six weeks but the other died as the result of injury to the kidneys from the inhaled solvent vapor. The third man suffered no illness.

As may be seen from this accident (or improper method) absence of difficulties on a solvent-using job is no assurance that the procedure is safe. When operations are carried out intermittently, the effects of improper handling may not become evident immediately.

Typical intermittent operations which require suitable precautions include tank cleaning, cleaning of machinery, removal of paint from walls of spray booths, sludge removal from degreasing machines, etc. The nature of the solvent employed will determine whether safeguards against both fire and health hazards are needed.

If it is impractical to provide mechanical ventilation for intermittent operations, workers should be protect-

SPRUANCE QUALITY

SINCE 1906

Wood Lacquer for the Furniture Industry, in Gloss - Semi-Gloss - Flat

This company has always featured a highly specialized and complete line for the furniture industry. Among these specialties are:-

LACQUERS of high quality – which may be rubbed – having excellent build – will stand cold check and resist alcohol. Their uniformity and hard finish – have been proven in actual production for many years.

SEALERS–(two types)–one that sands readily in a half hour. It's tough – time saving – satisfactory. The other – is of highest quality – has maximum toughness – holds out the finish, but cannot be sanded for an hour. They are adapted to your preference–your production methods.

Rely on The GILBERT quality for high grade lasting

SPRUANCE COMPANY durable finish . . . beauty.

Our research and technical staffs are at your disposal.
Inquiries Invited.

The Gilbert Spruance Company

Richmond and Tioga Streets
Philadelphia 34, Pennsylvania

ed from inhalation of the vapors by respirators approved for the type of solvent and the circumstances involved. Skin contact may be prevented by the use of solvent-resistant gloves, protective creams and aprons. The solvent should be kept in closed containers labeled with the necessary precautionary information and workers should be informed of the dangers of improper procedures. — SAFETY RESEARCH INSTITUTE.

More About Tack Rags for Finishers

THE ARTICLE, "Use Tack Rags for Perfect Cleaning," as published in November issue, page 68, was of great interest to us and we appreciate having you call this item to our special attention. The article is the type that has been needed for a long time, as there are still too many finishing men who are not familiar with the advantages to be obtained from the use of a good tack rag.

However, as much as we liked the idea of the article, we fear that the writer has given some false impressions and has tended to perpetuate some of the most common misinformation about high-quality, commercially processed tack rags.

In the second paragraph he states without qualification that tack rags "are packed in individual, oiled-paper, air and moisture proof envelopes. They should be kept in the envelopes when not in use so they will stay clean and retain their tackiness."

For over a year we have been selling direct to an increasing number of industrial users, tacky cloth in rolls for cutting to any length desired, and we are also packing tack rags in bulk without any individual envelopes whatsoever. In fact, our new advertisement in INDUSTRIAL FINISHING stresses these facts.

For small users the individual envelopes may be all right, but for the larger firms who use several hundred tack rags a month, the individual envelopes are completely unnecessary and merely add to the cost of the basic product.

It is our desire to bring our high-quality tack rags to as many users as possible at the lowest possible price and, since they will stay soft and tacky for months when hung in the open air, we have eliminated the cost of envelopes and the cost of labor and overhead involved in packing the tack rags individually.

Under separate cover we are sending, to your attention, a sample of one of our newer types of tack rags for your own confirmation of our claim. In shipping in bulk, our products are carefully packed in specially treated paper and can be kept just as clean in the carton as they can in individual envelopes.

In the last paragraph the writer of the article in November issue gives the impression that there is a fire hazard in direct connection with tack rags. While it is true that many "home-made" tack rags, and possibly some commercially processed ones, may be subject to spontaneous combustion, this is by no means true of all them. We note that some of our competitors advertise their products as spontaneous combustion-proof, or even as non-combustible or non-inflammable, and we know that our own products are spontaneous combustion-proof because we use only carefully selected, non-oxidizing ingredients. We have never found a tack rag that will not burn in the flame of a match, despite claims by some manufacturers.

As specialists in the tack rag field, we are making no other products and consequently, are in a position to work on new ideas. We run hundreds of experimental tack rags of all shades and types, and subject them to the

SAND BY AIR

IN STRAIGHT LINES WITH THE SUNDSTRAND OPPOSED PAD SANDER

and Get a Better Job Faster

This is the sander you'll want for production or maintenance work on wood, metal, plastic or composition. It's a sturdy air operated machine—easy to handle because of vibration-free action. You'll effect savings between 50% to 70% on production sanding—wet or dry.

Pads of this outstanding sander reciprocate in a straight line and in opposite directions—grain structure can be followed easily, producing finer final finish. Ask for a demonstration of a Sundstrand in your plant before buying any portable sanding equipment. There's no obligation.

FREE DATA

If your work includes sanding of wood, metal or composition on production or maintenance work, write for free complete bulletins. Ask for bulletin IF-48.

SUNDSTRAND MACHINE TOOL CO.
PNEUMATIC MACHINE DIVISION
ROCKFORD, ILLINOIS, U.S.A.

most rigorous tests before we accept them as suitable. Also, we have done development work on special types of tack rags to fit the special needs of large industrial consumers.

To sum up, we are doing our best to make safe high-quality tack rags available to industrial users, at the lowest possible prices and we don't believe that the article under discussion gives the complete story by any means. It does seem that your readers could be rendered a service with a follow-up article in an early issue.

We are just beginning to push the results of development work carried on during the past two years and shall furnish you with any news releases on tack rags as they are ready. —BAUGHN CHEMICAL PRODUCTS CO.

Spray Painting Courses Announced by DeVilbiss

Five intensive one-week courses for Industrial Finishers are included in the DeVilbiss School of Spray Painting curriculum for the first half of 1950. Maintained as a service to all users of DeVilbiss equipment, these tuition-free courses include comprehensive instruction on all spray painting techniques and the function and care of spray equipment.

Classes lasting one week each will begin on January 23, March 27, April 17, May 8, and June 19, with all courses covering the same subject matter. For further information and application blanks, write for Forms F-224 and INS-753-A. Since class size is necessarily limited, it is advisable to write for reservations as early as possible to The DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio.

National Production Exposition to be in Chicago in 1950

The National Production Exposition, sponsored by the Chicago Technical Societies Council, has been scheduled for April 4th through April 8th, 1950, at the Stevens Hotel, Chicago.

Under an unusual floor plan layout, the 1950 Exposition will accommodate 211 exhibit booths in the Stevens Exhibition Hall. The show hours will be from 1:00 P.M. through 10:00 P.M., Tuesday through Saturday.

John C. Toohy, 176 W. Adams St., Chicago 3, Ill., is Exhibit Manager.

Detrex Elects R. L. Murray As a Director

Stockholders of Detrex Corporation, Detroit 32, Mich., have elected Robert Lindley Murray as a Director of the Corporation. Detrex manufactures and markets industrial cleaning equipment and cleaning compounds and solvents.

Mr. Murray is also executive vice-president and a director of Hooker-Electrochemical Co., Niagara Falls, N.Y.; also vice-president and director of Hooker-Detrex Inc., a jointly owned subsidiary of the Hooker and Detrex companies. He is a chemical engineer with degrees from Stanford University, and is recognized as an authority in the chlorine and alkali industry. He is the author of many technical papers, and has received medals for his work in the chemical and engineering fields.

R. L. Murray, now a Director of Detrex Corporation, Detroit.

Briner Paint Mfg. Co. in Texas Elects New Officers

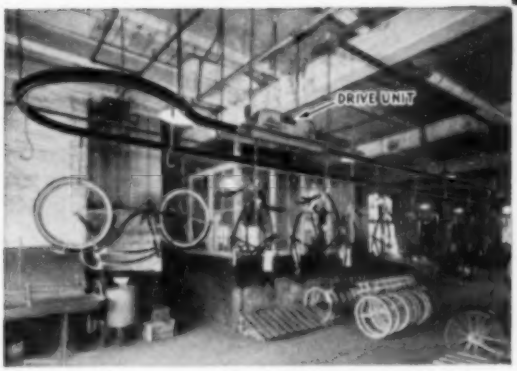
George A. Briner, founder and president of the Briner Paint Mfg. Co., of Corpus Christi, Texas, announces incorporation of the company and the election of two new officers. James M. Hammock was appointed vice-president for sales and John W. Nee vice president and technical director of the new corporation.

The present company was founded as the Briner-MacLaren Paint Mfg. Co. until 1941, when Mr. Briner became sole owner, and has had a steady growth from the start.

Mr. Hammock is a native of Texas and has been with a paint company in Houston since 1939, except for three years in the Navy where he saw action in the Pacific with Bomber Squadron 109.

John W. Nee, Brooklyn-born, is by his own admission a "Naturalized Texan." Mr. Nee recently resigned as technical director of a paint and varnish firm in Houston, to join the Briner company. Mr. Nee was graduated from New York University and Pratt Institute. He has spent 21 years in the protective coating industry, part of this time with two well-known concerns in the east.

Bananas or Bicycles



There's a Richards-Wilcox Conveyor for Every Job

In *your* plant, no matter what the handling problem or how difficult the layout, Richards-Wilcox Conveying Equipment can lower costs and speed production. Find out which R-W Conveyor most advantageously fits your production picture.

1. *Tru-Tred Beam Track Over-Way Systems*—For heavy duty handling and electric hoist service—eight different sizes of track. Designed to handle heavy loads over long spans without superstructure—capacity 8,000 pounds.

2. *Lock-Joint Trolley Track and Ball-Bearing Hangers*—Tubular track systems for handling lighter loads with maximum flexibility—capacity 3,000 pounds.

3. *Zig-Zag Continuous Power Conveyor*—For smooth continuous movement of light loads within confined areas, and the handling of products through degreasers, dip tanks, spray booths, drying ovens, or similar applications.

Your nearest Richards-Wilcox branch will gladly furnish you with full details and complete engineering consultation without obligation.

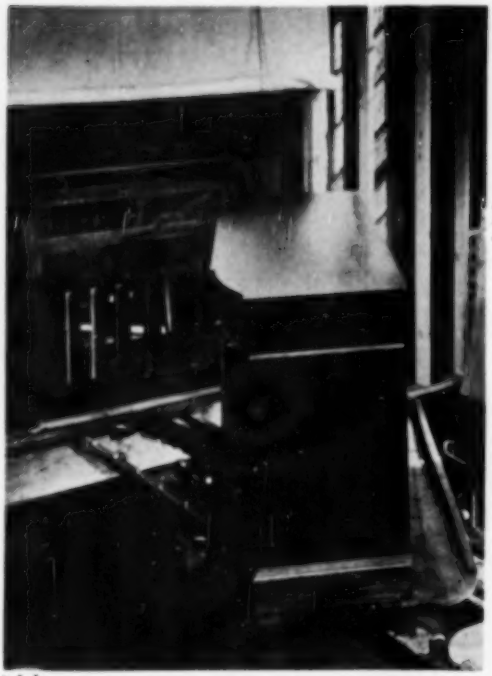
1880 RICHARDS WILCOX R W AURORA 1949

Reg. U. S. Pat. Off.

OVER 69 YEARS

Richards-Wilcox Mfg. Co.

AURORA, ILLINOIS, U.S.A.



As loaded pallets, in close pack formation (crosswise and edge to edge), leave drying room they are automatically turned to a position lengthwise of conveyor, and spaced a predetermined distance apart.

What They Say!

"In my opinion, the DE BURGH CONVEYOR is the greatest improvement in finishing since the introduction of spray guns."

B. M. Baker,
Grand Rapids Chair Co.,
Grand Rapids, Mich.

"The mere fact that we again selected a DE BURGH CONVEYOR after having operated one for several years speaks for itself."

F. J. Michaels,
Oxford Cabinet Co.,
Oxford, Pa.

"Our finish has been greatly improved in quality. We heartily recommend your system."

Harry L. Greenberg, Treas.-Secy.,
Angelus Furniture Mfg. Co.,
Los Angeles, Calif.

"After operating the DE BURGH FINISHING SYSTEM for more than a year, we again visited a number of other conveyorized plants, and are fully convinced that we have the best."

H. C. Lucas, Secretary,
Gillespie Furniture Co.,
Los Angeles, Calif.

"We consider it a key machine and are immensely pleased with our investment; our production is high, our costs low and our quality improved."

Maury Ranier, Plant Supt.,
L. A. Period Furn. Mfg. Co.
Los Angeles, Calif.

The many special features of the DeBurgh Finishing System, developed especially for furniture finishing, are protected by U. S. Patent No. 2,317,675 and other patents pending.

Investigate!

DeBurgh Conveyors

Patented and Patents Pending

For Assembly, Finishing and Upholstering

1741 K St., N. W., Washington 6, D. C.

Magnetic

To be magnetic, products — as well as personalities — must possess certain distinctive qualities peculiar to themselves alone. Finishes developed in our Creative Studio give you the opportunity to put your product in this "magnetic category". Our highly skilled artists approach your finishing requirements with a singular thought. They are determined to provide you with an individualistic coating unequalled in texture, beauty, and ease of application.

Place your product on the dealer-preferred, consumer-preferred lists by taking advantage of the special service we offer. No cost or obligation, of course.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD ILLINOIS

Manufacturers of Protective and Decorative Coatings

Masking for Spraying

On pages 40 to 54 of the August issue of INDUSTRIAL FINISHING, appears an article by George Conrad entitled, "Masking for Spraying". Will you kindly advise which manufacturer is able to supply "Masking paper . . . in all widths with tape already applied to two edges"?—G.P. Co.

Mr Conrad tells us he had in mind Minnesota Mining & Mfg. Co., Tape Division, 411 Piquette St., Detroit, Mich.—ED.

For Reclaiming Thinners

We noted with interest your editorial in the April 1949 issue of INDUSTRIAL FINISHING on "More Ways to Stop Costly Wastage." We are particularly interested in obtaining information on solvent stills for reclaiming mineral spirits used in cleaning metal surfaces.

We would also like to know if you have any information on manufacturers of filter units for reclaiming thinners used in washing metal parts prior to painting. It is not absolutely necessary to have all the pigment removed. A slight discoloration in the solvent would not be detrimental to our requirements. It is the heavy sludge material that we wish to remove.—C.&F.Co.

Several firms make solvent stills. In a letter we are giving you the names and addresses of some of them—ED.

Paint Reclaiming

Many thanks for your letter of October 20, regarding an inquiry from Carbide & Carbon Chemicals Corp. on paint reclaiming equipment. We certainly appreciate having our name given as a source of information on this subject. We note that you also listed some paint manufacturers who reclaim paint overspray as part of their operations. The list is a bit out of date so we are sending you a list of the companies who are actively reclaiming paint overspray at present.—INDUSTRIAL COATING ENGINEERS, Detroit 26, Mich.

Auto Lacquer Mixing Setup

We solicit your help in contacting manufacturers of automotive lacquer mixing equipment. The equipment required is of the type used in the automotive repaint business, where the mixing of basic toning colors is carried out on the premises, the actual formula for mixing being supplied by the lacquer manufacturer.—P.J. & A., Durban, South Africa.

In a letter we are naming concerns who, we believe, can supply what you want.

Nail Hole Putty

In the October 1948 issue of INDUSTRIAL FINISHING, there was an article concerning nail-hole putty, written by the Plastic Coating Co. Can you furnish us with the address of this organization?—M.C.Co.

The firm's address is 6911 Stanford Ave., Los Angeles, Calif. Another nail hole putty is "Duratite", by Webb Products Co., 224 S. "G" St., San Bernardino, Calif.—ED.

Graining Rollers

There is a firm in Grand Rapids that has manufactured embossed wood graining rollers for many years, and I believe the name is the Grand Rapids Roller Co. Would you please let me know what their correct name and address is, so that I can write to them?—X.Co.

Probably you have in mind the Grand Rapids Panel Co., Grand Rapids, Mich.

Three Component System of Finishing

I would greatly appreciate receiving any information you can dig up about a new type of finish that has been described to me rather vaguely. It is called "The Three Component System"; It requires no primer; adheres to plate glass; has very high chip resistance; has high alkali resistance; and heavy coats can be applied without sagging. It is not essentially vinyl resin.—W.L.M.

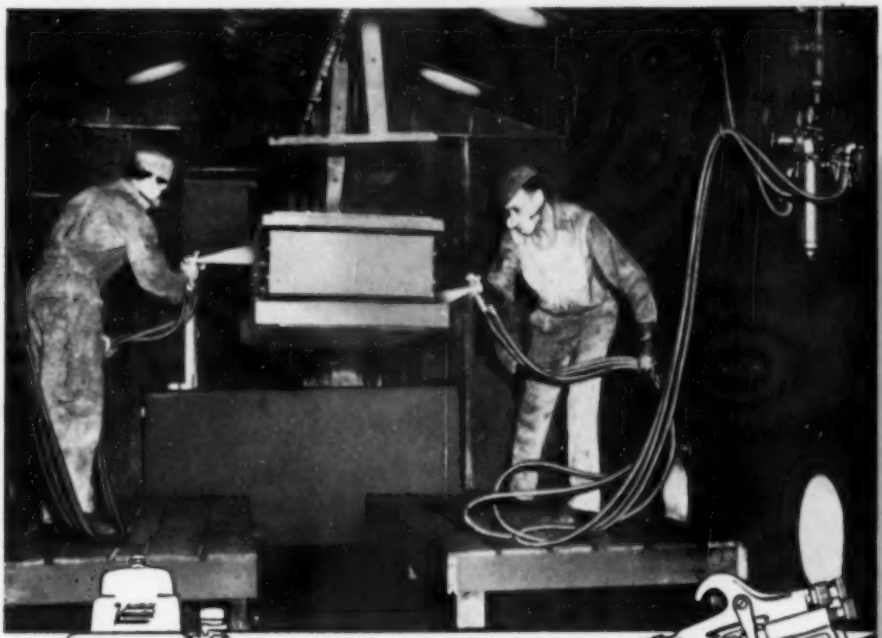
Can someone tell us whose material or system is referred to?—ED.

Frosting for Windows

We recently read the following item in a newspaper:

"Frosting for windows is a paint that gives the same effect as commercial

Faster Finishing at Less Cost



Pump and Spray from the Original Containers

1 Air-operated Versatal Pumps dispense materials directly from original drums . . . serve up to 6 spray heads.

2 Hydraulic pressures deliver materials through as much as 1000 feet of hose or pipe.

3 Versatal eliminates "time-out" for material handling and transferring . . . increases output per man hour.

ALEMITE
Versatal
SPRAY-PUMP EQUIPMENT

Another Product of STEWART WARNER

For complete details write Alemite, 1805 W. Diversey Pkwy., Chicago 14, Illinois.

ground glass, permitting clear light to enter but providing privacy, even under strong illumination. It is applied with a brush or spray and dries quickly to furnish a good washable finish."

Can you give us the name and address of one or more manufacturers of this type of paint? We are interested in the possible application of the paint to the windows on the south side of our factory buildings which are particularly subject to glare.—F.P.I.

Will some reader please tell us whose coating material will answer these requirements?—ED.

Coating Small Parts by Tumbling

This is to request any information you may have pertaining to the enameling of small parts, particularly stampings, by means of tumbling. This process seems to be common practice in the eastern area, but there is little information available on the subject in the far western states.

Because we believe this method may apply to the finishing of our stampings, we need all details which will assist in our evaluation of the process. We shall greatly appreciate any data or references to users, processors or equipment which you believe may be relevant.—H.D.Co.

In a letter we are sending you tear sheets and reprints of articles published on this subject; also, we are submitting names of manufacturers of tumbling barrels and centrifugal machines.—ED.

Gold Leaf on Picture Frames

The M. Swift & Sons, Inc., of St. Louis, Mo., have given me your address, in request for information as to application of gold leaf on picture frames. They advise that there will be an article appearing in INDUSTRIAL FINISHING within the next month or two, giving complete information. I will greatly appreciate your advising where and when I may be able to obtain this number.—U.P.&W.Co.

Perhaps you have in mind the article published in July, 1947, issue entitled, "Gold and Metal Leaf Applied to Fine Frames." This was written by our associate editor, Mr. P. C. Bardin. We haven't published any feature on this subject since then. We hope that you will find this of interest and value.—ED.

Make Paper Oil Resistant

Can you put us in touch with a manufacturer who makes a preparation which can be used to impregnate paper so that it will become oil resistant? We use paper control cards in our knitting machines and these cards have to be changed frequently because they become oil soaked and deteriorate rapidly.—S. Knitting Mills, Inc.

Perhaps a varnish or lacquer coating will answer your problem. In a letter we are naming several concerns that make and sell coatings for paper.—ED.

Electric Branding Machine

Will you kindly inform us who makes the Martin automatic electric branding machine, used in the marking of brands on base ball bats? We have searched your publication diligently and have been unable to locate any such advertisement. If you can help us by advising the manufacturers, we shall appreciate it—E.H.Co.

We don't find the name you mention in our directories, but in a letter we are submitting the names and addresses of several other concerns that make electric branding tools.—ED.

Silk-Screen Process Paints

We would appreciate your furnishing us with the names, if possible, of all of the current suppliers of silk-screen pastes suitable for doing work on metal name plates and signs, so that we may write the people and have them submit samples for our work.—E.M.P.Co.

In a letter to you we are naming some of them.—ED.

Sandblasted Wood Finish

I am writing you concerning a particular finish of wood. It seems that in the past, several firms have sandblasted wood surfaces and finished them with various colored pigments and sealers.

Within the last ten years, a patent has been obtained by a firm in the midwest, covering this process. I'd appreciate it if you could let me know if you have heard of it, or have any records or publications concerning it.—A.E.N. (Consulting Engineer).

Perhaps you have in mind Lehwood Corp., 1703 S. Ironwood Drive, South Bend 14, Indiana.—ED.

Whose White Enamel Used On Those Tubs?

We should like to receive the name of the manufacturer of the white enamel for aluminum tubs, as mentioned in the article beginning on page 15 of September 1949 issue.—Autolac S.A.

We would like to request some information on the article which appeared in September issue entitled, "Finishing Alu-

NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
RELY ON
NEW PERIOD QUALITY FINISHES
TO GIVE YOUR PRODUCTS
EYE APPEAL . . . BUY APPEAL
Take a tip from America's leading manufacturers—rely on New Period Quality Finishes for a finish of lasting beauty. Whatever your problem, you'll find we have the answer.
• Fillers and Stains
• Lacquers—Clear and Semi-Gloss
• Sealers
• Lacquer Enamels—Flat and Gloss
• Synthetic Enamels
Convince Yourself.
Write for 5 gallon working sample at drum price.
MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES
NEW PERIOD
Production Finishes
ESTABLISHED 1917
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

minum Tubs with A Durable White". If possible, we would appreciate learning what material was used to finish the Speed Queen Washers manufactured by Barlow & Seelig, and discussed in this article.—K.D.

If I remember correctly, the material used at the time I visited the plant was "Duranite", made by Atlas Powder Co.—P. C. BARDIN (Author of article).

"Our Pride and Joy"

Since Oliver tractors are our pride and joy, we'd like to have your permission to reprint the interesting article, "Designing and Painting the Oliver Tractors," which appeared in the July issue of INDUSTRIAL FINISHING. We would like to use the reprint in our dealer magazine, "The Oliver Shield." Would you please send along a glossy print of the picture of W. H. Adams?—THE OLIVER CORP.

Permission granted and picture forwarded.—ED.

Setup for Finishing Safety Razor Blades

We have a special finishing system for the production finishing of safety razor blades, and will be happy to discuss it with "C.C.C." who asks about this in "Letters from Readers," page 90 of November INDUSTRIAL FINISHING.—Maas & Waldstein Co.

Burn-Proof Table Tops

We would appreciate your advising us the manufacturers of the "Mar and Burn-Proof Table Tops" described on page six of November issue of INDUSTRIAL FINISHING.—A. Coach Co.

Our reference indicates that it is Dykes Lumber Co., 137 W. 24th St., New York, N. Y.—ED.

Metal Cleaning and Phosphate Coating on Steel

I notice on page 86 of November issue of INDUSTRIAL FINISHING, someone is inquiring in reference to metal cleaning and phosphate coating on steel. We are also interested in receiving the names of these people who have such a process.

We are also interested in knowing if there is a combination setup for degreasing and bonderizing, or similar process at the same time.—K. I.

In a letter we are giving you names and addresses of a few concerns who can supply what you want. Of course, "Bonderizing" is a trade name of a process developed and patented by Parker Rust Proof Co., 2176 E. Milwaukee St., Detroit 11, Mich.—ED.

Special School on Ceramic Finishing Offered by Binks

Binks Mfg. Co., 3122 Carroll Ave., Chicago 12, Ill., is offering a special one-week course on porcelain enamel spray finishing, beginning February 6. Binks invites all those interested in ceramic finishing to attend this course. The classes are conducted without charge. Applications should be mailed at once so that arrangements can be made to handle everyone.

Instructors for this special session of the Binks School will include authorities in both ceramics and ceramic finishing equipment. Arrangements have been made with the Ferro Enamel Co. to have one of their experts, Mr. E. E. Bryant, on hand to answer questions on porcelain enamel and porcelain enamel shop procedures.

Becomes Industrial Sales Mgr. of Du Pont Finishes Division

Joseph B. Dietz has been appointed manager of the industrial sales section of the Finishes Division of the Du Pont Company. He succeeds Henry E. Lackey, who is retiring after a career of nearly 43 years.

Mr. Dietz has been assistant industrial sales manager since 1945. A native of York, Pa., and a graduate in chemical engineering of Lehigh University, he joined the Du Pont Company at the Philadelphia paint plant and laboratory in 1924 as a control chemist. After specializing on varnish research and production, Mr. Dietz in 1932 became an industrial salesman, handling furniture finishes in the Virginia-North Carolina-South Carolina-Tennessee area. He came to the Wilmington headquarters of the Finishes Division in 1945.

Aluminum Industries Offers a Line of Quality Varnishes

A complete line of high-quality exterior and interior varnishes for floors, furniture, linoleum and woodwork, under the brand name "Permite", is announced by the Paint Division of Aluminum Industries, Inc., Cincinnati, Ohio. This company has been an important factor in supply ink the growing demand for aluminum paints since it pioneered in the development of completely ready-mixed aluminum paints some two decades ago.

The experience gained through those years, supported by laboratory research and careful field testing, has now enabled Aluminum Industries, Inc., according to M. M. Carmody, Sales Manager, to offer a complete line of varnishes to meet the current demand for high-quality varnishes at a moderate price. Permite Varnishes are made in the same modern plant where Permite Aluminum Paints are produced, and are described as having good flow and body and affording a hard, yet elastic, long-lasting finish.

FLOCK

Short-cut fibres of all types used to produce effects of suede, felt, velvet, mohair, velour, carpet on any surface in an economical manner.

Let our 25 years experience
be your guide to quality
results at lowest possible cost.

Rayon Processing Co. of R. I. Inc.

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

55 MOSHASSUCK STREET **PAWTUCKET, R. I.**

POLLAK PAINT CO.
715 Main St.
Buffalo, N. Y.

LAMBERT-NEW ENGLAND CO.
79 Sudbury St.
Boston, Mass.

H. R. MEININGER CO.
409 16th St.
Denver, Colo.

J. GORDON SMITH CO.
3901 Main St.
Dallas, Texas

Cleaning Bonderized Sheet Steel Before Painting

We are manufacturing cabinets of Paintgrip and Paintlok, bonderized sheets made by Armco and Republic respectively. Our painting procedure is a flash coat, then a finish coat, one bake of DuPont enamel.

At present we are washing the panels with rags dipped in lacquer thinner, but the thinner dries before we can wipe the surface with a clean dry cloth.

We suspect that we have some surface contamination before painting, but are at loss for the best way to hand-clean these parts.

Republic recommends a final wipe of a mixture of Tertiary Butyl Alcohol and chromic acid for moisture resistance. I am not sure whether we should or will adopt this; but if so, could we use something other than Tertiary Butyl Alcohol, which seems to be almost impossible to locate, in addition to being very expensive?

Would appreciate your suggestions for a method of hand cleaning, and solvents to be used for our setup. —D. P.Co.

This is really a problem for a technical cleaning service engineer from one of the manufacturers of cleaning materials who advertise in this magazine. He will examine the surfaces of your sheet metal, find out exactly what kind of dirt or smudge or grease or compound is present, and then recommend a safe and economical cleaning material for effectively removing it by whatever methods you choose to use.—ED.

Painting Auto License Plates

Could you tell me how auto license plates are finished? How is the enamel applied on the raised letters? Also, where could I get equipment to do this job on a production basis? — C. N., Vancouver, B. C., Canada.

The usual procedure is to roller coat the background color on large metal sheets which are later cut into the plate size. After this coat is baked and cooled, the individual plates are cut and punched, and the numerals are embossed.

In the U. S., most license plates are produced in State prisons where labor costs are not a factor, therefore, they apply the contrasting color to the raised numerals with a hand-roller of suitable width. However, the same thing could be accomplished mechanically by procuring a gelatin composition roller of correct consistency and firmness so that the plates could be run through a roller coater to apply color to only the raised numbers. These rollers are commonly known as "printers rollers" and probably some firm in your city could furnish them. If not, you might contact some concern on the West coast, or write Vogt Roller Co., Inc., 222 S. 12th St., Louisville, Ky. For roller coating machines I suggest Gasway Corp., or Naz-Dar Co., both of Chicago, Ill.—ASSOCIATE EDITOR.

Highlights on

HILO

Product Finishes

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Synthetic Gloss White Enamel

When oven capacity for long baking is limited—the answer is NU-SYNTOL! With a bake of only 10 minutes at 250° F., NU-SYNTOL imparts a full, high-gloss white surface on smooth metal *in one coat.* A NU-SYNTOL protective coating resists the action of alkalies, cosmetics, gasoline, fruit juices, hair tonics, liquor, mineral spirits and machine oil. It is lead-free and harmless. Don't tie-up production. Use NU-SYNTOL low heat, quick-baking synthetic with excellent results.

Send for Hilo Bulletin No. 26 and a free sample, or 15 Gallons or more on Approval, transportation paid.

HILO

HILO VARNISH CORPORATION

42-60 Stewart Avenue, Brooklyn 6, N. Y.

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Synthetic Enamel for Use on Glass

We are interested in a synthetic enamel that has good adhesion and fast colors on glass. The colors most used are ruby, pink and blue, both clear and opaque. Our conveyor system bakes the glass items in a 9-minute cycle at 315° F. as it passes through our conveyor oven.—K.E.Co.

Your specifications for glass enamels are not difficult to meet. I suggest that you contact a supplier of industrial finishes and present your problem. An alkyd enamel, or a urea-alkyd enamel of high-hiding power will provide good adhesion, and will bake at the specified temperature.

For the transparent colored finishes, heat-resistant transparent pigments or toners must be used to provide the necessary fastness to heat and light. Ordinary hiding pigments will be suitable for the enamels. If your requirements for gloss are not too high, the enamel can be rather highly pigmented, which will provide faster baking.—ROLLIN H. WAMPLER.

Why Blisters Burst and Leave Rings

Referring to a question and answer on the above subject, as published on page 82 of October issue, the C. Cabinet Co. is very vague in outlining the finishing procedure that produces blisters on its finishing enamel coat. For example, it is not clear to me whether the top coat is baked or air dried. However, a solution to the problem should be elementary, and the trouble should be eliminated through analysis of the finishing system by the enamel supplier. A few thoughts, on the subject, include the following:

A) Short oleo-resinous varnishes and short alkyd vehicles sometimes have a tendency to crackle and foam when subjected to application by either brushing or spraying; this is especially true in the case of short-oil phenolic varnishes. There are many ways of breaking this surface tension; the most desirable would be dependent on the type of formulation, and it should be a responsibility of the supplier of enamel.

B) Temperature variation between the enamel and the object to be sprayed could be a source of trouble; this is only mentioned as a possibility for checking.

C) There have been cases where a primed surface is too hard and slick—on which a topcoat of enamel might have a tendency to crawl in spots, causing a crater effect. Proper solvent balance and proper atomization will eliminate the trouble in a case of this kind.

D) A few spot checks that might be helpful for the C. Cabinet Co. are:

1) Humidity in room where primer is dried. There is a possibility that microscopic amounts of moisture are present on the primer coat.

2) Check the sanding and wiping system to be sure that no oil or grease contamination is a factor.

3) Spray the same enamel, under comparable conditions, on a large piece of clean sheet metal, to determine if it is actually faulty enamel that is causing the blisters, or a combination of the enamel and primer used in the system.

4) Check the solvent storage and solvents used, to make sure that no water contamination exists in tanks or drums.

In the event that the top coat is force dried, blistering could result from any other contributing factors. —A. P. LEHMANN.

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Requires lowest capital investment . . .
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DETROIT 12, MICHIGAN

Materials Supplies Equipment

New Humidifying Units

A new line of humidifying units, suitable for atomization of water, chemicals, insecticides, perfumes, etc., is announced by the Paasche Airbrush Co., 1909 Diversey Parkway, Chicago 14, Ill.

Health and fire protection are said to be two of the notable advantages of using these humidifying units. By eliminating dry and dusty working conditions, the dangers of spontaneous combustion are minimized. Static electricity is grounded. Respiratory ailments such as colds are reduced, with worker "absenteeism" due to these ills greatly curtailed. Available in three sizes, the new Paasche units will diffuse up to one, two and three gallons of water or other liquid per hour, respectively. These capacities are claimed to be sufficient to control the humidity within 2% fluctuation in areas of 15,000, 30,000 or 45,000-cu. ft. of space. The required air pressure is 6-cu. ft. per minute at 40-lbs. supplied by suitable air compressor.

Protective Coating for Damp or Rusted Surfaces

A vinyl coating that can be applied over damp or rusted or old painted surfaces and which adheres satisfactorily, is announced by The Wilbur & Williams Co., Greenleaf & Leon Sts., Boston 15, Mass. The paint film dries in about 30 minutes, and has high resistance to chemical fumes and spillage, abrasion and mild heat. It is tough and flexible; resists flame spread and fungus growth. It is intended for use chiefly as a maintenance paint.

Name of the material is Styrenated Acid-Causticbond Maintenance Coating. Colors available are white, gray, red, black and aluminum. It can be applied by brush or spray.

New Synthetic Wax

A new synthetic wax, Ceramid, is now available in commercial quantities. Chemically it is an alkyl stearamide. It is hard, light yellow in color and melts between 175° to 177° F. It is insoluble in water but is soluble in organic solvents. Absolute alcohol will disolve 5.4 grams per 100-cc. In toluol and naphtha, 3.8 and 3.4 grams respectively can be dissolved.

Ceramid is compatible, in varying proportions with asphalt, carnauba wax, cumarone resins, ethyl cellulose, microcrystalline wax, paraffin wax and Acrawax C.

Its use is indicated for protective coatings and films to be deposited on various surfaces out of solvent solution. It emulsifies readily to give a white matt finish which can be rubbed

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Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

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JAMES B. DAY & CO., CHICAGO

to give a high polish. It may be used as an anti-tack agent for resin organisols. In most lacquers and enamels it dissolves clearly and serves as a flatting or gloss reducing agent. In polishes, insulating compounds, etc., it is used in blends with other waxes and hydro-carbons for special effects.

Samples and further data may be obtained from the Glyco Products Co., Inc., 26 Court St., Brooklyn, N. Y. and Natrium, W. Va.

Portable Spray Outfit

For the many small paint and spraying jobs, the Electric Sprayit Co. of Sheboygan, Wis., has designed a special portable spraying unit. The unit is easily carried from place to place and it is simple to operate. The diaphragm compressor delivers oil-free air in ample capacity and the balanced crankshaft assembly insures vibrationless operation.

Weight, 39-lbs.; ¼-hp. motor.

The aluminum container holds one quart of spray material and has an internal mix spray gun, with interchangeable nozzles in round, fan and angle patterns. The unit's total weight, with motor, is only 39-lbs.

There are no pistons, no rings and oiling is never required since the unit is self-lubricating and has sealed bearings. It operates on ¼-hp. motor.

Portable Electric Polisher

A new light-weight portable electric tool for rubbing and polishing finished metals, woodwork, plastics and similar surfaces is announced by the Portable Tools Division of Cummins Business Machines, Inc., 4740 Ravenswood Ave., Chicago 40, Illinois.

Weight, 4¼-lbs.; free speed 1300-rpm.

A patented swivel side-handle can be positioned at any point on the tool for ease of operation, either right or left-hand.

Specifications include a die-cast aluminum frame of streamlined design; universal type motor for operation on 115 volts, either AC or DC; dynamically balanced armature with insulation baked on for full protection and durability; planetary precision gearing of alloy steel; ball and Oilite bearings in proper position for smooth, quiet operation; 6-in. diameter backing pad; 2-pole switch, trigger type, for effective control and maximum safety; ventilating fan to keep the tool comfortably cool; 10-foot 3-conductor rubber covered cord.

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HIGH LUSTRE ENAMEL
WITH SELF-FORMING DESIGN

Dries to Hard Finish in 24 Hours

Blue, black, green, gray, brown, maroon and white

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CENTURY PRODUCTS COMPANY
14324 Birwood • Detroit 4, Michigan

"Flame-Seal" is a New Fire Retardant Paint

Even the hot scorching flame of a blow torch cannot ignite a sheet of infammable newsprint if it has been coated with the new fire retardant and non-toxic paint called "Flame-Seal."

Mr. Irving H. Tarnopol, president of the Flame-Seal Corporation of Illinois, 230 N. Canal St., Chicago 6, Ill., reports that the new fire retardant coating has already been tested, approved and listed by Underwriters' Laboratories, Inc., a testing organization sponsored by the National Board of Fire Underwriters.

Called "Flame-Seal," it is highly recommended for use as an interior paint to fire retard all combustible wood surfaces, as well as plywood, veneer, cardboard, and various types of fiber partition boards.

When typical fast-burning lumber or highly combustible partition board is coated with Flame-Seal, the protected surface can withstand the direct attack on an intense flame for hours without igniting or showing any sign of flame spread.

This is possible because when the new paint fights fire it undergoes a complete physical transformation and forms a crust-like fire-retardant wall at least eight times the thickness of the original coating. "Flame-Seal" gives off no toxic gases either while being applied or when exposed to fire.

The new fire retardant coating comes ready to use, requires no mixing of special chemicals, and can be applied directly from its original container by brush or pressure spray gun. Not affected by humidity, it may be applied during any weather conditions and during any season of the year. The coating can be cleansed

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Removes paints, enamels, synthetics and wrinkles almost instantly. You can see the finish literally "pop off". Only one operation required. Refinish immediately.

Non-injurious to hands or metal.

Write for sample and quotations, or order 5 gallons at drum price.

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with a damp cloth without affecting its protective qualities. Flame-Seal "Standard" is available in oyster white semi-flat finish, and Flame-Seal "Imperial" can be obtained in a range of seven pastel colors.

Air Dry Crackle Finish

Century Products Co., 14324 Birwood, Detroit 4, Mich., announces a product called "Rime-Cote" which can be brushed on (or sprayed) to produce a quick air-dry pattern finish, of crackle or crystallizing type, on paper, metal, wood, or plastic surfaces. It produces a self-forming design when applied at a room temperature of 70° to 78°F.

This material is frequently used for refinishing the interiors of automobiles, but it is adaptable to production work, as a finish for new products.

To Measure Heat of Liquids

The demand for an accurate and universally adaptable method of determining surface and sub-surface temperatures in industrial plants and laboratories has prompted the Pyrometer Instrument Co., Inc. of Bergenfield, N.J., to develop an all-purpose instrument to meet this requirement.

This new instrument features a large 4-in. direct reading indicator mounted in a rubber cushioned housing, thus offering ease in reading as well as long, durable service. Two distinct series of Models offer either a rigid extension arm or a long 42-in. flexible arm suitable for use with any

Can be dipped into hot liquids safely.

one or more of a selection of eight types of available thermocouples. Each series of instruments is available in four temperature ranges from 0-400° F. to 0-1200° F., and all thermocouples may be interchanged without adjustment or recalibration.

Catalog No. 180 illustrates and describes this new instrument in detail and may be obtained from the manufacturer upon request.

Meters to Measure Flow of Finishing Material

A line of flow meters which measures the quantity of liquid, (oil, thinner, finishing material) flowing (steadily or intermittently) through a pipe or hose during any specified period of time—in other words, metered liquid—is offered by the A.O. Smith Corp. (Meter Division), 1115 W. Washington Blvd., Chicago 7, Ill., and 5743 Smithway St., Los Angeles, Calif. The Indiana representative is D. B. Hill, 3220 N. Pennsylvania St., Indianapolis 5, Ind.

"Rugalaka" (Inverse Hammered) Pattern Finish

A new and distinctive protective coating called "Rugalaka" is announced by the Lacquer & Chemical Corp., 220 40th St., Brooklyn 32, N.Y. This finish resembles the broadloom pattern of a rug or what might be considered an inverse hammered finish. This material may be air dried or baked to a smooth high gloss finish and is available in all colors. It has been formulated to sell for less than the standard hammered finish and is ideal for typewriters, lamp bases, vacuum cleaners, and general castings, as well as many other uses.

Applying the finish, drying, rubbing, and the other intricate processes, a few years ago, took several days. With the new quick drying finishes now available the entire procedure is a matter of hours.

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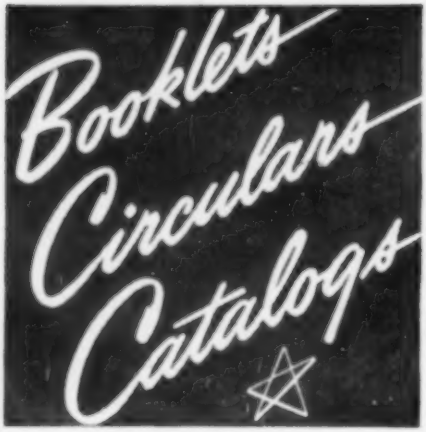

Industrial Safety Catalog

Willson Products, Inc., Reading, Pa., has issued a new industrial safety equipment catalog which provides product information on the company's line of eye and respiratory equipment. This 64-page illustrated book contains a fund of technical and reference material to help the user select the proper type and style of equipment for any specific occupational hazard involved, and to give him information on its use and care.

Synthetic Resins for Coatings

A new, up-to-minute guide to its complete line of resins for use in surface coatings and printing inks has just been issued by the American Cyanamid Co., Coating Resins Dept., 30 Rockefeller Plaza, New York 20, N.Y.

Designed to aid the formulator in selecting the proper resin for his needs, this compact guide is devoted exclusively to tabulating the physical and chemical properties of each of the coating resins manufactured by the company.

Bassick Releases New Folder on "V" Grooved-Wheel Casters

A new 8-page folder which gives latest information on V-grooved wheel casters for angle-iron track is now ready for distribution by The Bassick Co., Bridgeport, Conn.

These casters with "V" grooves are designed to operate on angle iron tracks which can be laid out in accordance with the most efficient flow of production, thus saving floor space and handling time. The track can be easily relocated as conditions require, thus providing an inexpensive system of controlled materials-handling with great flexibility.

"The Story of Magnesium", $2.00

A new book published by the American Society for Metals, "The Story of Magnesium", by W. H. Gross, is designed for the layman rather than the scientific or technical specialist. The author has achieved a combination of simplicity, accuracy, and readability, to which over 100 illustrations and diagrams have been added, making an excellent reference source for every process including casting, fabrication, machining, joining, surface finishing, riveting and welding of magnesium.

"The Story of Magnesium", tells of the methods of making this metal from salt water, of the properties of the metal and its alloys, and of the processes whereby the ingots can be converted into washing machines, vacuum sweepers and hundreds of other forms.

"The Story of Magnesium", contains 262 pages, size 5¼ by 7¾-inches, with 100 illustrations, printed on coated paper. It is available at $2.00 per copy from the American Society for Metals, 7301 Euclid Ave., Cleveland, Ohio.

Floor Cleaning and Waxing Machine

A new, heavy duty, all-purpose floor maintenance machine has been put on the market by S. C. Johnson & Son, Inc., Racine, Wisc.

Identified as the Johnson's Wax Super 16-in., the powerful machine comes equipped with a complete line of easily-attached accessories to readily adapt it for polishing, scrubbing, sanding, grinding, and steel-wooling. With the use of a solution tank and a shampoo brush, the machine can also be used for shampooing carpets.

A 4-page 3-color brochure describes the Super 16-in. and its many uses in detail, and gives instructions for its use on all types of floors.

Planned Industrial Lighting

A planned Lighting Equipment Selection Guide, clarifying the application of the 12 basic industrial lighting systems for general lighting, is being made available without cost by the Benjamin Electric Mfg. Co., Des Plaines, Ill. The bulletin is especially designed for use by architects, electrical contractors, lighting specialists and industrial executives.

Feature of the Guide is a handy Selection Chart, which enables the user to see at a glance the application of each of the 12 major Benjamin Lighting Systems, covering practically every seeing task with illumination requirements from 10 to 150 footcandles. A separate chart shows the application of special lighting units for installation in localities with combustible, dusty or damp atmospheres.

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Tiny particles of Claremont Flock sprayed against the inside contours of this electric motor covering, form into a sound-deadening layer . . . results in quieting the operating sound of a whirring motor! Another *first* for Flock . . . industry's most versatile finishing medium! Investigate Flock's possibilities. Enjoy its advantages. Write Claremont today.

CLAREMONT WASTE MFG. CO.

CLAREMONT, NEW HAMPSHIRE

Protective Coatings for Metals

"Red lead appears to be outstanding" for enclosed structural members in steel housing construction, according to a recent study by H. A. Pray and P. S. Peoples of the Battelle Memorial Institute for the American Iron and Steel Institute. Some 34 kinds of paint systems were studied during the testing.

Experiments with the many well-known and established paint coatings included: 1) continuous immersion in water; 2) contact with air at high humidity; 3) continuous condensation; 4) alternate wet-dry conditions, and 5) continuous contact with insulation in the presence of water. The tests were intended to simulate both severe and moderate conditions of service and "should form a basis for valid comparisons between the effectiveness of the coating systems studied."

In one phase of the testing one painted panel was damaged by scratching it lengthwise through the paint film to base metal. In the case of damaged films exposed to immersion in water, "only System C (red lead) offered protection to the bare steel in the damaged zone. In fact, for the majority of the other systems, continued exposure would have resulted in actual perforation of the base metal in this area in a relatively short period of time."

As the report stated, "It (red lead) has a good blister rating, it affords excellent protection to the base metal, as evidenced by low weight loss and slight visual evidence of attack on the steel and . . . penetration and undercutting at the damaged zone are either negligible or slight."

The 64-page study of paint systems has been distributed to members of the Iron and Steel Institute as No. 31 of a series entitled "Contributions to the Metallurgy of Steel."—National Lead Co., 111 Broadway, New York 6, N.Y.

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Ventilation and Heat Where Exhaust Fans Operate

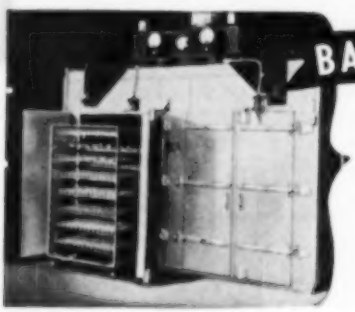
Mechanical ventilation of industrial structures to remove air contaminated by fumes, dust or gases necessitates another function that is of equal importance—replacing, or making up, the air that has been exhausted from the building.

How this can be accomplished efficiently and economically in various types of industries is described in a new illustrated brochure published by the Heating Section of Dravo Corporation, Fifth and Liberty Ave., Pittsburgh 22, Pa. Copies may be obtained without charge by writing for Bulletin 529.

Introduction of clean, fresh "tempered" makeup air into a factory structure has two primary benefits:

1) Improvement of employee health and morale by elimination of foul air.

2) Balancing atmospheric pressure inside the building to increase the efficiency of combustion equipment and ventilating systems.



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YOUNG BROTHERS COMPANY
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Established 1896

Regardless of the volume of air vented from a building by means of hoods above fume-producing operations, paint spray booth fans and other types of exhaust equipment, every cubic foot removed should be replaced by a cubic foot of fresh air.

During the summer, replacement may not have to be accomplished mechanically because enough outdoor air could be sucked in through open windows and doors. During cold weather, however, replacement air brought in from the outside this way would chill the building and create uncomfortable temperatures for workmen.

Removal of large volumes of air from a building without replacing it causes negative atmospheric pressure that hampers the proper function of exhaust fans and upsets the combustion balance for ovens or process equipment resulting in poor efficiency. Moreover, in some cases, a supply of fresh outside air protects plant machinery from abrasive or corrosive action of air contaminants.

The Dravo "Counterflo" Heaters described in the brochure perform a triple function: They draw in air from the outside, heat it to desired output temperature and distribute it uniformly and without drafts throughout the working area. During the summer, with the same equipment, the air can be brought in and distributed without heating it.

Preventive Maintenance Control For Production Equipment

Preventive maintenance of machines and equipment and the record control system needed to administer such a program effectively, is the subject of a release just issued by the System Division of Remington Rand, Inc.

Systems described and illustrated in this 6-page report are being used effectively by many manufacturers to prevent interruption of production schedules; to increase operating efficiency, to prevent breakdowns in delivery promises; and to reduce cost of manufacture. The system is based on a procedure which prompts scientific inspection of machines, so as to curtail "emergency" repairs and facilitate discovery of that point in the performance of any machine where the law of diminishing returns sets in.

This folder also outlines how preventive maintenance records may be combined with property records to insure that exactly the right amount of equipment is on hand at all times, maintained in top operating condition.

Copies of folder KD-449 are available from the local sales representatives of the Systems Division in more than 100 offices throughout the country, or by writing to Systems and Methods Research Department, Remington Rand, Inc., 315 Fourth Avenue, New York 10, N.Y.

RONCI SPEEDIP WHIRL ENAMELER

Made in Two Sizes, R-100 and R-200 Capacity 312-cu.in. and 1206-cu.in.

IDEAL FOR LACQUERING AND ENAMELING SMALL PARTS UP TO 7-IN. IN LENGTH

CUTS COSTS, SAVES UP TO 80% OF MATERIAL

Carries up to 75-lbs. per load, and up to 30 loads per hour can be coated with lacquer or enamel in these machines.

All operations are within the machine. Dipping tank is raised, submerging the parts in the basket, and then lowered and the parts whirled, throwing off excess material. No additional outside tanks required; no cleaning necessary when changing colors; no loss of material.

PROMPT DELIVERIES

Write for further information and submit samples to be coated.

RONCI MACHINE COMPANY

A Division of F. Ronci Co., Inc.

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Industrial FINISHING Editorial

Frequent Inspection Of Equipment

Now that the pressure for production is not so severe as it was a few years ago, it is high time that management centered its attention on prolonging the life of shop equipment. This may be done through regular periodic inspection and prompt maintenance service.

Replacements that become an emergency and which have to be made quickly and perhaps at inconvenient times are very expensive; first, because they cost real money. Second, production may be interrupted at a certain point if not all over the department. Third, any replacement that is demanded immediately may involve the expense of air express to get something delivered, and it may require the employment of other firms' service men at a premium rate of pay. With proper inspection and care, much equipment could be made to serve its useful purpose for twice and often three times as long as it does when it is neglected.

There was a time when inspection and maintenance had to be "caught up with" between shifts. Now it is different. Just how often equipment should be inspected and repaired depends upon what it is and the extent to which it is used. Some heavy duty stationary machines may need only a monthly check-up, whereas some portable equipment such as spray guns, electric or air-driven sanders and rubbing machines should be inspected every week. In this way small repairs and part replacements may be made in the plant instead of returning the equipment to the factory for a major repair job, or if damaged beyond repair, for a new piece of equipment.

Electric, water and air lines need attention too. This applies especially to plants that have been in operation over a period of years. Faulty electric lines and connections may cause a fire. Water may damage equipment, work in process or the finished product. Leaky air lines are a needless expense. While on the subject, it may be well to paint each pipe line a different color to make identification easier for all personnel.

Where and How to Cut Costs

All manufacturers are interested in cuting costs without reducing the quality and appearance of their products. At a recent meeting of the Society for the Advancement of Management, three business executives spoke

★ ★ ★ **INDUSTRIAL FINISHING wishes all of its friends a Merry Christmas and a really Happy Prosperous New Year.**

on three methods of accomplishing this feat.

Harold F. Smiddy, vice president of the General Electric Co., declared that "cost reduction programs require the entire supervisory, engineering, purchasing and accounting personnel." He also added, "In many cases, the setting up of quotas for cost reduction in each and every area has produced remarkable results."

These are necessary steps in any cost reduction program, but to get back to the first of the three methods of cutting costs, Mr. Smiddy stressed that "under good control, an annual inventory turnover of 15 to 20 times is possible. Minimum turnovers of 8 to 15 times per year are to be expected. Turnovers of two or three times are not good enough. A minimum inventory, turned several times, provides many benefits and savings such as a minimum of obsolescence, deterioration and handling.

Otto G. Schwenk, vice president of Yale & Towne Mfg. Co., discussed the second method, material handling. He believes that only the surface has been scratched in large scale cost reductions through scientific handling of materials. He went on to cite several companies where savings of 75% to 90% had been effected by installing improved handling methods and equipment. It is estimated that from 30% to 36% of every production dollar is consumed by the average cost of handling materials. The Harvard University School of Business recommends that every factory have a man or a department responsible for material handling methods. *(p. 102)*

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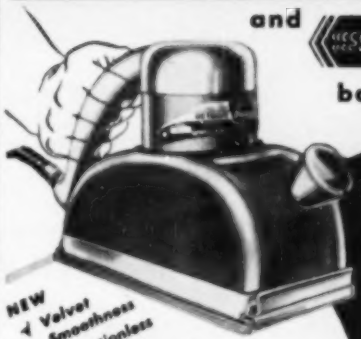

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Easy's fast, *strate-line* action duplicates the back-and-forth motion of hand block work. Sands up to moldings and right angles. Does not sand cross grain, cut swirls or other hard-to-cover abrasive patterns.

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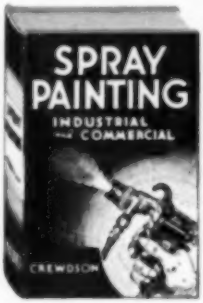
This new book covers the fundamental principles of spraying technique, together with the latest developments and practices of this craft. Covers common paint pigments, paint extenders, enamels, oil and spirit varnishes, shellac, lacquer, synthetics, all types of modern air guns, spraying technique, spraying standard materials, spraying defects, their cause and remedy, flock and suede finishes, striping and lettering, pearl lacquer finish, also automatic spraying, electrostatic spraying, agricultural spraying and automobile spraying. Ends with the sprayers "Ten Commandments."



INDUSTRIAL FINISHING
1142 N. Meridian St. Indianapolis 4, Ind

Dr. Herman C. Nolen, vice president of McKesson & Robbins, Inc., explained that costs could be reduced by increasing unit sales. Referring to his firm, he said, "To solve the problem of higher break-even points, we dug up all of the facts we could about our business." This, it seems would be a wise move in any event.

It was brought out at this meeting, that labor costs have gone up three times since pre-war days; overhead expense has risen two times, while sales are up about 2½ times.

Other executives suggested reducing the number of competing lines and items in inventories in order to cut costs.

Perhaps one or more, or a combination of all of these methods could be employed in your business to reduce costs.

Open House Favorably Impresses Visitors

On those rare occasions when a manufacturing plant holds factory open house for a group of local people, showing them through and explaining everything while the plant is in operation, the results are almost invariably highly favorable in many ways. For example, the management of a tool making firm recently invited and escorted through its plant a bus load of school teachers. It wasn't a hurried trip; the visitors spent an entire day seeing all operations and learning about everything —through the office, stock rooms, production departments and shipping room. Many of them were manual training teachers; others were instructors in commercial and social science.

After it was all over, officials of the concern agreed among themselves that they had "hired 35 salesmen" as a result of the day's activities, for the teachers returned to their homes

When Detroit Non-Inflammable "TAC" RAGS Cost NO More!

*AN EXCLUSIVE FEATURE, PAT. PENDING.

...for fast perfect finishes without rejects!

Detroit Handy 'Tac' Rags in your finishing department insure you a mirror-like finish without the risk of a fire ... they remain soft and tacky indefinitely.

The Standard of Quality for 15 Years

DETRO MFG. & SALES CO., INC.

3429 Wesley St., Culver City, Calif.

SOLD BY LEADING PAINT DEALERS
USED BY THE COUNTRY'S FOREMOST MANUFACTURERS

FREE — Write Today...

for information telling how Detroit "TAC" Rags can save money in your finishing dept.

and class rooms with a more complete knowledge and a more friendly impression of this local industry.

Several teachers expressed a desire to have their students make such a tour of the plant, as they felt that it would be of great help in applying practical knowledge to text book training; and the company has agreed to arrange for student tours later.

Impressions voiced by some of the visitors included:

"I was impressed with the wonderful organization evident throughout the plant . . . and amazed at the number of operations necessary to make a single tool."

"Working conditions, as a whole, are made as pleasant as possible for the personnel."

"The high qualification standards of workmanship throughout the shop, and the very modern equipment, impressed me."

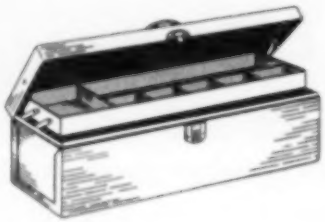
"The pleasant office . . . and clean working conditions in the shop . . . I would welcome an annual event of this sort."

More concerns are doing this sort of thing to enlighten people in reference to their products, management, production facilities, working conditions, and the factory's importance to those employed therein and to the community as a whole. More of this sort of thing will bring desirable and welcome enlightenment to all. It will certainly help to remove the distorted picture which some individuals try to put across, to the effect that American factories are places where good people slave long hours in unhealthful, unpleasant, uncomfortable and unsafe conditions—where their energies, their time and yes, their very lives are consumed mercilessly to grind out excessive profits for a few "money barons" or "idle rich" capitalists.

HOW . . .

Cellusuede FLOCK SOLVED A PROBLEM

PROBLEM: Give tackle box trays a surface which helps prevent rusting of hooks, tools, and other fishing gear. Also, keep hooks from becoming dull, and at the same time increase the appearance of the box.



SOLUTION: After experimenting with various coatings, a box manufacturer found that rayon Cellusuede Flock met all requirements—including protection, beauty, ease of application, durability.

How About You?

If you intend to coat the interior of any type box—or if you want a velvet-like surface for most any product, try Cellusuede Flock. It is available in many lengths—a wide range of colors.

Send for Samples, Prices and Descriptive Folder.

CP

Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

Give Orders That Can't Be Misunderstood

★ Quite often we take certain things for granted; for example, like assuming that our orders will be carried out as we would do the job. Instructions are sometimes incomplete and, as a result, more or less trouble occurs.

The order to do a job should, in some cases, be accompanied by a recommended procedure, as evidence by this experience, where a verbal order was passed on and on; neither individual considered it necessary to be specific; in both cases it was assumed that the other fellow knew what was meant.

Some time ago, I made frequent trips along our production line to check the efficiency of operations and the quality of our workmanship. We were applying a thermo-setting white enamel to sheet metal stock.

During a period of observation, a considerable amount of spray dust that had built up on a section of the spray booth, broke loose and fell on one of the finished panels. Knowing that it would be easier to salvage the panel if the film of enamel could be washed off before baking, I instructed the spray man to yank the panel out and have one of the boys wash it, and then put it right back on the line for enameling. After giving this order, I left.

On my next trip along the line, the spray man informed me that he did as instructed; he passed the job of washing the panel to a spray trainee, with

---

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

the same instructions, "Wash this panel and put it back on the line".

The trainee did as instructed. He washed or started to wash the wet enamel film off the panel—with water. Finding it impossible to remove the enamel film with water, the spray trainee informed the spray man of his problem. Then, needless to say, the instructions given were specific at this point; and as a result, the trainee has learned something about the function of solvents or thinners.

It isn't always the pupil; sometimes it is the teacher who is at fault when some order is misunderstood or carried out incorrectly—A. P. LEHMANN.

Paint chemists have produced tougher, more durable and more beautiful finishes than ever before. Were it not for the technical advancements made, industries could not maintain their present production schedules.

Don't Tamper with Your Finishing Materials

★ Sometimes the qualities of many excellent finishing materials are lowered and their beauty is destroyed by users who insist on tampering with them. Most coating materials are formulated for a specific purpose. The raw materials are blended to give the proper solids, viscosity, and maximum durability for the finished material. In most cases the manufacturer has done considerable research work, and the materials are carefully formulated so as to give the best in durability and beauty to finished product. Then the user of the material, with no technical knowledge of its composition, proceeds to tamper with it—sometimes just to satisfy a whim. Often this results in producing too thin a film which causes poor build, or too thin viscosity which causes

Mac's FASHION LACQUER PASTE FILLERS

RAPID-DRI AND OVER-NITE TYPES

Are specially formulated to withstand lacquer solvents and to prevent shrinkage and grayness.
Rapid-Dri Lacquer Paste Fillers oxidize in three to four hours ready for the regular finishing schedule. The Over-Nite type oxidize more slowly. They give excellent adhesion and provide a good foundation for the finish.
Available in all shades of mahogany, walnut and oak — also natural.

Write for a descriptive folder.

The Lawrence-McFadden Co.
Headquarters for Fine Finishes Since 1875
7430 STATE ROAD PHILADELPHIA 36, PA.

NOW! Tack Cloth in Handy Rolls *or* Cut Bulk

Cut off any size piece and use as needed.

Already cut and folded, ready to use.

Now you can get Tack Cloth packed the way it's easiest for you to use—either in 150 yard rolls of 36" wide cloth or in handy cartons—100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will **stay** SOFT and TACKY until the very last bit is used up.

The Cut Bulk size is 18" x 36"—folded to 4½" x 18" for easy handling. **All of our Tack Cloth is Spontaneous Combustion-Proof, Lint-Free and Wax-Free.** It's clean and sanitary—**there's no waste.**

Write today for complete information, prices and samples.

Baughn Chemical Products Company

"The Tacky Wiper Specialists"

7027 N. RAVENSWOOD CHICAGO 26, ILL.

Also Individually Packed in Glassine Envelopes —144 to the Carton.

A WARRANTY OF SATISFACTION IN EVERY CARTON

runs and sags; or by improper thinning he may have caused poor adhesion which destroys the durability of the material.

If materials are to be thinned at their place of use, they should be thinned according to directions furnished by the manufacturer of those materials, and the foreman finisher should see that they are thinned with the thinners specified by the manufacturer. In no case should a novice be allowed to tamper with finishing material.—H. W. CHESTER (Supt. of Finishing).

The general principles of fire control are easy to understand. Limit what there is to burn. Have suitable fire extinguishers and water in sufficient quantity for putting out fires that may start. Most fires can be prevented through sensible precautions and cleanliness.

New Woods May Call For New Methods

With the increasing cost and scarcity of our well-known cabinet and furniture woods, manufacturers in some localities are tempted to try other woods that may be offered. Some of these woods are native; others are foreign.

Before an unfamiliar wood is tried out in production, some careful experimenting should be done to find out how it will take the finishing materials the concern experts to use. Something in the wood's chemical makeup may cause certain stains, fillers, sealers, etc., to act differently than usual. Drying time may be different. Short cuts in the usual finishing processes may or may not be possible.

The texture, grain, figure and color of the wood may be responsible for

some peculiar reaction to customary finishing materials and methods. Certain finishing materials may seem to be repelled by something in the wood, or they may turn to some undesirable tint or shade soon after application, or long afterward. On the other hand, some new and striking effects or beautiful colors may be obtained, either through the usual procedure or through some special treatment.

These facts must be established beyond question, through research, testing and experimenting, which may take considerable time. Here is where close cooperation with the laboratory personnel of a reliable and progressive manufacturer of finishing materials can be of great value to the concern that proposes to try out one or more of these new or unfamiliar woods in its production.

Trick Finishes Taboo by Big Companies

Several — perhaps we should say most—of the large concerns that manufacture and sell practically everything in the line of finishing materials are definitely not interested in some of the so-called "trick" or novelty finishes; for example: marbleizing finishes, crystallizing lacquers, etc.

In reference to a marbleizing finish, about which a few readers have inquired, the Products Development Director of a very large and well known firm wrote the Editor as follows:

"I am sure that we would not care to work on it. Material of that nature is sold in awfully small volume, and the very nature of the beast makes it one continual headache. Customers are always hollering for service, and by the time you spend money to keep it working in a customer's plant, you lose money on every gallon you sell."

In a bid for inquiries, the Industrial Sales Promotion Manager of an-

GLOBE BRANDS

BRONZE POWDERS . . .
all shades and grades
for various purposes

•

ALUMINUM POWDERS AND PASTES

•

GOLD, SILVER, COMPOSITION
AND ALUMINUM LEAF

B. F. DRAKENFELD & CO., INC.
45-47 Park Place New York 7, N. Y.

Your partner in Solving Bronze Powder Problems

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Does your product need
IMPROVED CLARITY? HIGHER GLOSS?
THEN TRY
QS
AMAZING
FURNITURE
BLOOM CLEANER
IT'S QUICK IT'S SLICK
IT'S PERMANENT
Simply wipe it on—wipe it off! QS becomes a part of the lacquer film—no afterbloom—no greasiness. For that new SLICK feel; for that new HIGH LUSTRE; for that richer than ever CLARITY—try **QS**
Write for a free sample to
FRED A. BROWN COMPANY
GRAND RAPIDS, MICHIGAN

The Sign of
CLINCO
Highest Quality
LACQUERS - - -
- - - ENAMELS
Let us help you with
your finishing problems
THE CLINTON COMPANY
1210 Elston Ave., Chicago 22, Illinois

RESTORE PAINT
IN 2 MINUTES

PER GALLON WITH
MIRACLE
BLUE - BOY
5 GALLON
PAINT REJUVENATOR
Paints, lacquers and enamel products can be restored to their original consistency without opening the can. Units available to handle from ¼ pint to 50 gallon drums. Immediate delivery.
Originators of paint rejuvenating equipment---sixteen years—thousands of satisfied users.
Write for folder & prices
MIRACLE PAINT REJUVENATOR CO.
127 E. 9th Street St. Paul 1, Minn.

other very large company recently wrote the Editor something like this:

"From time to time you receive inquiries from your readers as to sources of supply for various types of production paints. As an advertiser in INDUSTRIAL FINISHING we shall appreciate your including our name among others which you recommend to them. In our normal operations we develop, produce, and sell practically every type of production organic finish used industrially."

Within a few days the Editor received and referred to this firm an inquiry for crystallizing lacquer. A reply came back, including this paragraph:

"As comprehensively as we handle industrial coatings, as we indicated to you in our recent letter, we continue to frown on crystallizing lacquers, as you realize many paint companies do, because of the virtual impossibility of controlling textures; consequently, we are not contacting the company who made the inquiry."

It is evident that certain of these "trick" specialty finishes are not ordered in sufficient volume to make them profitable or even desirable for concerns that do a large business in the development, manufacture and sale of industrial finishing materials.

Look Into Warehouse and Storage Space

What about your warehouse and storage space? Has it been inspected and cleaned up lately? Often material handlers and truck operators are the only men who go into the warehouse or storage rooms for many weeks at a time, except perhaps the night watchman. These men are intent on their own particular jobs, and as long as they can perform their tasks they are not concerned about how cluttered up the place may become. They may

or they may not realize that their work could be done easier, safer and more quickly if all of the supplies and materials were properly stacked in neat piles, with well marked traffic aisles kept free of obstructions at all times. To provide adequate light, all burned-out electric lamps should be replaced promptly.

Superintendents and foremen, trained in good housekeeping, are circulating in the plant every day. The maintenance crew takes care of the mechanical needs of the plant, but who takes care of the warehouse and storage rooms? Unless someone is specifically assigned to this job it may be left undone and, as a result, you have perhaps a needless fire hazard and a place where accidents are more likely to occur, and where products and materials may be wasted, damaged or stolen. It's something to think about.

Pictures of Factory Operations are Useful

Pictures usually tell the story better than words, and some companies have taken advantage of this fact. They have had action shots made of their manufacturing processes showing the progress of the product as it advances through the plant. Outstanding modern equipment is featured. Safety and protective features are shown. Many operations are brought to light and to the attention of the prospective customer. These pictures also serve to remind salesmen of the many operations necessary to complete the products.

These pictures serve a triple purpose. They may be used in the company's advertising. Then brochures may be made up for use by their sales force. Finally outstanding key pictures may be blown-up into mural

You Can Have a

PEARLESCENT

Finish at Low Cost!!!

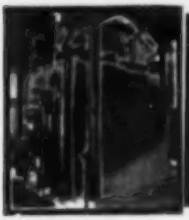
CHEM-SCALE requires relatively small quantities to produce lustrous and pearlescent effects. It may be readily incorporated into cellulose nitrate plastics and lacquers; also other plastics and coating materials.

CHEM-SCALE, a brilliant PEARLESCENT white pigment for decorative finishes, is supplied in concentrated form (12½%) dispersed (1) in nitrocellulose dissolved in butyl acetate and (2) in cellulose acetate dissolved in methyl "cellosolve" acetate; also in paste form consisting of 25% CHEM-SCALE incorporated in various solvents and diluents to meet customer specifications. CHEM-SCALE is shipped in one gallon glass containers or five gallon metal pails lined with polyethylene.

Write for sample and submit specifications and requirements.

SHUMAN CHEMICAL PRODUCTS, INC.

58 JOHN HAY AVE. KEARNY, N. J.



THE [illegible] CO.
INDUSTRIAL OVENS
760 PROSPECT AVENUE • CLEVELAND, OHIO
CONSULT US REGARDING: HEAT TREATING OVENS • CORE OVENS
PAINT OVENS • RUBBER CURING OVENS • AIR HEATERS, ETC

Economical protection for your sprayers
PULMOSAN
R-151 Respirator
Built for durable service. Longer-life cartridge. All parts replaceable.

Pulmosan Safety Equipment Corp.
644 Pacific St., Brooklyn 17, N. Y.

size to be hung on the walls of the reception room where all who wait may see. Customers and prospective customers often enter the plant portals as well as salesmen. Good pictures are impressive as well as interesting and informative.

"Chemicals You Live By"

To portray at a glance the important contributions of its chemicals to the end products and manufacturing processes of the nation's basic industries, Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio, has developed an unusually interesting, illuminated display for exhibition at trade shows in which the company plans to participate next year.

Built in three sections, the 20-ft. by 3-ft. display highlights "chemical processing by pushbutton control", figuratively speaking.

Operation of an electrically-equipped keyboard lights up any one of eight different panels, each of which gives a capsule description of a major Diamond product or group of products.

The many diverse consumer items containing "chemicals you live by" or requiring them in manufacture are mounted on an accompanying board with individual "islands" holding these various articles which are illuminated at the same time the appropriate panel is lighted up.

Random Comment on the Industrial Scene

(Continued from page 6)

pieces. Even then the results of the average home finisher may leave much to be desired.

In this type of furniture, price is an important factor; however, it seems that for just a little more price the manufacturer could set the stage by pre-finishing the wood-parts, say up to and including the sealer coat. Then Mr. Householder could sand and apply a top coat of clear varnish or lacquer which might be included in the package.

* * *

Aluminum-on-Steel Bonding. A new aluminum - on - steel combination has been reported by Science Service of Washington, D. C. in its coverage of new patents. The light metal serves as a coating to protect the steel against corrosion. The government has issued patent 2,484,118 to Richard S. Reynolds, president of Reynolds Metals Co., Richmond, Va., to cover the process.

In the new method, two strips of aluminum foil are applied to top and bottom of the steel sheet. A fine iron coating is applied to the steel first by an electrolytic process to provide a permanent bond between the steel and aluminum surfaces. Older methods of applying aluminum to steel by dipping the steel in molten aluminum were unsatisfactory. *(To page 112)*

BE FRESH . . . STAY FRESH!

on

Paint Spray Jobs

wear a DUPOR No. 4

The favorite paint spray respirator! Rubber face mask provides air-tight fit over nose and mouth. Twin filters keep aggravating fumes, gases, vapors out of lungs. Also wear as protection against sawdust, silica dust, grinding compounds.

COVER'S GAS-TIGHT FOG-PROOF GOGGLES $1.65

Sample sent $1.65 ppd

H. S. COVER, South Bend, Ind.

BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) New	$8.50
"CHEMICAL FORMULARY" (Vol. VIII)	7.00
"FINISHING METAL PRODUCTS"—2nd ed. (352 pages)	4.00
"PRACTICAL FURNITURE FINISHING" (112 pages)	1.25
"FURNITURE FINISHING" (543 pages)	4.00
"SPRAY PAINTING"—Industrial and Commercial (169 pages)	2.00
"THE MIXING OF COLORS AND PAINTS" (292 Pages)	2.50
"WOOD FINISHING" (361 pages)	2.50
"NATIONAL PAINT DICTIONARY" (704 pages)	7.50
"MODERN POLISHES AND SPECIALTIES" (313 Pages)	7.50
"PRACTICAL COLOR SIMPLIFIED" (128 Pages)	5.00
"GRAINING"—Ancient and Modern (224 Pages)	4.00
"THE SILK SCREEN PRINTING PROCESS" (225 pages)	4.00
"INDUSTRIAL APPLICATIONS OF INFRA-RED" (200 pages)	3.50

Cash Must Accompany Order—Send for Descriptive Circular

INDUSTRIAL FINISHING

1142 NORTH MERIDIAN STREET INDIANAPOLIS 4, INDIANA

I. C. D. FORMULA NINE

NON-INFLAMMABLE
« *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives
EASY TO APPLY—NO AFTER CLEANING

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings from any surface or material . . costs less to use . . saves time, labor and material.

BRUSH CLEANER I. C. D. — non-inflammable brush cleaner works fast . . does not injure nor loosen the bristles. Easy to use . . leaves the bristles clean as a whistle. Order a gallon can and convince yourself.

ORDER TRIAL GALLON AT DRUM PRICE

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

515 FLUSHING AVE. BROOKLYN 5, N. Y.

The mill setup for handling the application of this coating involves in a single continuous process passing steel strip from a coil through a cleansing bath, an electrolytic bath where it receives the iron coating, a furnace to heat it to about 850° F., then between two strips of aluminum foil which are bonded to the steel by high pressure rolling. The aluminum-covered steel can then be further rolled to reduce its thickness.

* * *

Pigment Dispersion Process. A simple new chemical transfer process for the combination of metal pigments—free of water—with resins and oils has been perfected by The Commonwealth Engineering Co., applied research and development organization of Dayton, Ohio.

The new method substitutes kettle, heat control and stirring apparatus for the heavy mills presently used to break down and disperse pigments into pastes.

Called the Kol process for the colloidal aspects involved, the method effects a complete and homogenous dispersion which may be used for paints, plastics, inks, linoleums or whenever a pigment paste is required.

The new method involves only the use of stainless steel containers, plus control heat for effecting the chemical reactions. Such equipment is the same as that normally used in the remainder of the processing which paints and plastics undergo, and hence can be integrated with the latter in a continuous process arrangement, eliminating the batch method now used. Besides introducing continuity of production, the new process is subject to a simple and sensitive control.

Portable Elevating Belt Conveyor. A portable motor-powered belt conveyor called the Styl-O-Veyor Junior is one that can be set to operate horizontally or one end can be raised to as much as a 30° angle. The load rides on a "Ruff Top" 30-ply rubber belt. An adjustable underbrace supports and steadies the mid-length of the conveyor. It works in reverse—can be run in either direction.

* * *

Plastic-Faced Plywood is now offered for use in making concrete forms. The forms can be used repeatedly to save cost and, perhaps what is of greater importance, the surface of the concrete poured into such forms is smooth enough to paint without any pre-finishing.

* * *

New Typewriter Ribbon. All of the new developments are not confined to industrial uses. This new Remington Rand ribbon is said to be the first all-nylon, and offers exceptionally sharp, clear impressions, and has long wearing qualities. It is available in 16-yard lengths which provides a third more writing surface than the standard 12-yard ribbons which also are available.

* * *

Fireproofness. Although asbestos cloth made of long fibers has been valued for its fire resistance since ancient times, recent large-scale applications have utilized the non-spinnable short fibers as fillers in plastics and as strengthening agents for asbestos-cement products. These uses now dominate the industry, absorbing over 90% of the raw material used.

Asbestos-cement tile, shingle, board, pipe, and other building materials have been in such demand in recent years that shortages have occurred in grades of asbestos that were once virtually waste products. The long

Safeguard your spray booths

• Layers of inflammable paint come off more quickly if you have applied Wyandotte Spray Booth Coating first. Only a thin coating makes cleaning easier, faster, more economical.

Your Wyandotte Representative will be glad to give you complete details on Wyandotte Spray Booth Coating. Why not call him today?

WYANDOTTE CHEMICALS CORPORATION
Wyandotte, Mich. • Service Representatives in 88 Cities

Wyandotte
REG. U. S. PAT. OFF.

"Wood Graining"
ADDS
Eye Appeal

American Graining Plates are photographic reproductions of fine woods.

AMERICAN RICHWOOD PRODUCTS CO.
Graining Plate Division
104 E. Mason St., Milwaukee 2, Wis.

fibers, spun into yarn and woven into cloth, are still important as heat-resistant textiles, although glass fiber has taken over some applications, such as theatre curtains and insulation for electric windings.—*Industrial Bulletin.*

* * *

Silk-Screen Alphabets. Those who do silk-screen process work will be interested in the new alphabets in all kinds of type faces (both capitals and lower-case letters) printed on individual cards. Letters are selected and slipped into a composing stick; when the line is completed a piece of scotch tape holds the cards firm so that they may be removed and mounted for photographing on the stencil. These alphabets are available in transparent faces, especially adapted to making carbon tissue silk-screen stencils.

* * *

Big Business is certainly important to our economy. So is little business. Both depend upon one another. There are more little businesses, and that may account for more criticism of big business.

Recently the president of Du Pont announced that his company had spent ten years and several million dollars in the development of cellophane. Little business doesn't have the organization, the time nor the money for such huge tasks—yet, from cigarettes to lamp shades, we all need and use cellophane.

Criticism of Tack Rag Article

WE HAVE read with a great deal of interest the article entitled "Use Tack Rags for Perfect Cleaning", on page 68 of the November 1949 issue of INDUSTRIAL FINISHING.

We found it contained much useful information and several valuable suggestions. We regret very much that we are compelled to correct several misleading statements which also appear in the article.

Tack rags, so far as we know, are not packed in "individual, oiled-paper, air-and-moisture proof envelopes". They are generally packed in ordinary glassine bags. Any oil on the bag could harm the quality of a tack rag contained therein. Air and moisture-proofness are not required, because a properly manufactured tack rag does not dry out in the air, nor is it harmed by moisture in the air. Furthermore, most manufacturers will supply rags in any one of several convenient sizes, and even in 200-yard rolls if desired.

In respect to fire hazard from tack rags, it should be said that the products of the reputable manufacturers represent no fire hazard as manufactured and sold, nor after normal use for their intended purpose. Undoubtedly, like any other rag which has been used around a painting operation, it is an excellent idea to handle discarded tack rags as outlined by the author—not because they are tack rags, but because they may have accumulated paint and enamel residues which could make them capable of spontaneous combustion.

You may feel that we are splitting some mighty fine hairs in raising these points, but we do encounter a great deal of misunderstanding and misinformation about tack rags out in the field, and most of it was built up by the accumulation of small errors and ambiguities such as those to which we have made reference.

We appreciate your desire to provide accurate and useful information in the pages of this publication, and that errors will frequently slip by even the keenest and most informed editorial eye.—MICHAEL J. BORUSHKO, Technical Director, Harding Mfg. Co., Inc.

Training a Helper for Your Spray Operator

By Geo. A. Conrad

THE SPRAYER was giving his new helper final instructions, prior to beginning work. They were about to spray some large 3-sided metal cases. Due to the small size of the spray room, it was preferable to bring the cases in from an adjoining room, a few at a time. The helper's job was to remove each case as it was finished, place it on an oven truck, move the loaded trucks into the oven, and keep a supply of unfinished cases handy for the sprayer. These metal cases were to be placed behind the sprayer and slightly to his left so that he could reach down and put a new piece in place without hanging up his spray gun.

When the first piece was sprayed, the spray operator stepped back, picked up a case, and waited; he waited until the helper came in with two more cases and put them in place. The helper crossed in front of the sprayer and removed the finished unit. The second and third went as per schedule. Then there was another delay while the helper tried to get ahead with his supplies, but neglected to take away the finished cases. In the meantime, the pile behind the sprayer had grown until the sprayer had to reach carefully over the lower ones to find one that was free. Finally, the pile toppled over. Then the sprayer decided to take time out while both he and his helper took stock of what they were doing.

The helper had fallen into a common enough error, trying to gain in one place at the expense of another and more vital one; he didn't seem to realize that what was required of him was not frenzied effort but smooth, clock-like co-ordination.

Much has been written about the need for training skilled sprayers and well-informed foremen, but more attention might well be devoted to selecting and training intelligent helpers, to the ultimate benefit of the whole craft. Since many of these young men will be the future sprayers and foremen, a little weeding out at this point might result in getting higher caliber men for the more responsible jobs later. *(To page 116)*

FOR

FINISHING AND RUBBING ROOM SUPPLIES AND EQUIPMENT

Immediate Delivery

We specialize in SUNDSTRAND Sanding and Rubbing Machines

Wilkinson Equipment & Supply Co.
6958 S. Wentworth, Chicago 21, Illinois

CONSTANT STUDY AND RESEARCH . . .

one of many reasons for the
INDUSTRIAL FINISHING leadership
enjoyed by the

NATIONAL
LACQUER & PAINT CO., INC.

7415 S. Green St. Chicago 21, Ill.

INFRA-RED OVENS
(Lamped or Lampless)
Individually engineered in stationary, conveyorized, portable or special designs
Manufactured by
THE MISKELLA *Infra-Red* COMPANY
Main office: 7305 Grand Ave., Cleveland 4, Ohio

FOR ALL FINE FINISHES
TAC-ALL TACK RAGS
Packed bulk or individually.
Prices and samples on request.
GEO. W. RENNER CO.
2309 Lillie St., Ft. Wayne 5, Ind.

An apprentice's importance in the finishing team cannot be stressed too strongly. Not only can he contribute substantially to the smooth and efficient flow of work, but he is also in a position to detect flaws in the established setup, and to suggest improvements.

However, it all depends on selecting young men of intelligence and then getting them on the right track. Encourage them to think. Too many industries adopt the practice of sending any "lug" who doesn't fit into any other department into the paint shop. This may explain many things.

When the helper mentioned at the beginning of this article was made to understand that the most important part of his work was to keep the spray operator going—that one or two pieces within easy reach of the sprayer were more important than a whole bunch to stumble over—his education was only beginning. He learned to place parts on the turntable so that the sprayer did not have to take a step or turn them; he learned to lift the painted parts without marring the finish; to load them on trays or trucks without delay or damage; and even to count the sprayer's strokes subconsciously and thus time himself accordingly.

A helper should also watch the time of day, so that the loads get into the oven before lunch time; to get the last batch finished in time for an adequate bake; and to allow time for cleaning up at the end of the day.

On his careful stirring and mixing of materials, the shop must depend for proper coverage and consistent quality of finish; on his care in cleaning the equipment, much of the next day's production may depend. Who will say that these things are not just as important as the sprayer's skill with the gun, or the foreman's knowledge in overseeing the shop? A competent helper can save his wages every day in materials and supplies that another would waste. Most important of all, it is at this stage of his career that he can be taught the habits of good-housekeeping, a rare and priceless trait.

These things and many others are in the line of duty of an apprentice whose work and intelligence will pay dividends to both his employer and himself, and which will eventually bring him promotion in the finishing field. Select and train your helpers with care, and you will never have to worry about where to get dependable sprayers or even supervisors.

Classified Advertising

Rate: $1.00 per line per insertion—minimum $5.00

SALES MANAGER AVAILABLE.

Complete knowledge of industrial and trade sales, advertising and merchandising. Would consider connection with progressive paint manufacturer located in Chicago or Midwest. Address IF-687, care Industrial Finishing.

FINISHER WANTED.

All around man who understands fine finishes; spraying; glazing; retouching; burning in, etc. Also leather tooling and laying leaf if possible, but not necessary. One who can take care of finishing room of small shop producing finest decorative furniture and mirrors. Excellent opportunity for right man. Give experience and salary expected. INVERNESS SHOPS, Madison, Ind.

FINISHING FOREMAN OR SUPERINTENDENT WANTED

By Television Cabinet Plant located 50 miles from Philadelphia. Permanent position with future for production man. Furnish complete history, including previous connections. BOX 110, Bethlehem, Penna.

INDUSTRIAL FINISHES CHEMIST.

Services required in eastern division of firm manufacturing all types of industrial finishes. Please send full particulars concerning qualifications to IF-680, care Industrial Finishing. Replies confidential.

COATING FOREMAN.

Experienced Coating Foreman or Coating Department Supervisor for Paper Coating Department of long established manufacturer located western New York State. Must have working knowledge of lacquers and other finishes and their application to paper by both continuous roll coating and spray coating. Definite opportunity leading to advancement to ultimate new position of Superintendent Coating Division. Give complete information in first letter as to age, experience and salary expected. Address IF-688, care Industrial Finishing, Indianapolis 4, Indiana.

SALESMAN WANTED.

Industrial salesman for New England territory to represent a medium sized, well equipped manufacturer located in New Jersey. We have a substantial business already established in this territory. Expansion program warrants our withdrawing present representative. Opportunity unlimited. Address IF-696, care Industrial Finishing.

SALESMAN WANTED.

A progressive salesman for the territory of Pennsylvania for industrial lacquers and synthetics. Must be experienced and have good connections to represent a medium sized, well equipped manufacturer located in New Jersey. Address IF-697, care Industrial Finishing.

COME TO TEXAS.

Live in Dallas. Sell the type accounts you know. For more than a quarter of a century we have made fine finishes for furniture, aircraft and metal products manufacturers. Also industrial and fleet maintenance finishes. Liberal commission and drawing account. ANDREW BROWN CO., P.O. Box 246, Irving, Texas.

SALES REPRESENTATIVE WANTED.

Established concern desires services of technically minded sales service representative to sell lacquers, thinners, adhesives, and allied blends in Southern Ohio. Salary and profit sharing arrangement. Write giving age, experience and other details. Address IF-690, care Industrial Finishing.

SALES REPRESENTATIVES WANTED.

One for Ohio—One for Indiana—to handle ovens, spray washers and conveyors for industrial finishing systems on commission basis. Possibly this equipment will work together with your present line. Write giving full details. Address IF-691, care Industrial Finishing.

AN UNUSUAL PARTNERSHIP OPPORTUNITY.

We manufacture a complete line of lacquers and synthetics in a modern plant located in the east. Our present sales volume is both stable and profitable.

The man we wish to contact should be an experienced, successful finishes salesman with an established volume of business. He should desire the rewards and security of proprietorship. The offer is attractive and does not require initial capital investment. Sales performance will be the principal determining factor. Address IF-693, care Industrial Finishing, Indianapolis 4, Indiana.

INDUSTRIAL FINISHES CHEMIST

Wanted for midwestern plant of firm manufacturing complete line of lacquers and synthetics. Please send complete information concerning experience, education, etc., to IF-679, care Industrial Finishing. All replies confidential.

INDUSTRIAL FINISHES SALESMAN WANTED.

This 50-year old well-known company is broadening its field of operation and requires services of technically able paint sales engineers with or without established contacts in Chicago, Detroit, Pittsburgh, Milwaukee. This is a real opportunity. Write in confidence to IF-684, care Industrial Finishing.

CHIEF CHEMIST WANTED.

This position is open for a qualified individual who wishes to associate himself with a well established firm manufacturing a complete line of lacquer and synthetic finishing materials in the metropolitan New York area. Please send full particulars concerning experience and qualifications. All replies treated in strictest confidence. Address IF-678, care Industrial Finishing.

INDUSTRIAL FINISHES SERVICE MAN WANTED.

Production line finishing experience; a general knowledge of surface preparation, paint application, and paint baking equipment. Opportunity with leading national manufacturer working out of Cleveland area. Salary, 5-day week. Submit complete experience qualifications with recent photo. Address IF-689, care Industrial Finishing.

SERVICE MAN WANTED.

We are looking for a furniture finish service man who is capable of introducing, in a practical way, our line of stains, fillers and top coats. He must have had a great many years experience in finishing fine department store furniture and be a real color man, capable of creating and developing his own color ideas for this class of furniture. He must be sober, reliable and of good appearance. He must be willing to live in Louisville, Ky. We are willing to pay a salary commensurate of ability. State educational background, age, experience, references and salary wanted, in replying. RELIANCE VARNISH CO., Louisville, Ky.

SALESMEN WANTED.

For Philadelphia, Penna., Metropolitan New York and New England States for Industrial coatings. Complete line of Nitrocellulose and Resin Finishes. Established Newark, N.J. concern. Excellent opportunity. Address IF-692, care Industrial Finishing.

WANTED TO BUY.

Will Buy your dirty Thinners and Solvents. Send sample or letter giving approximate contents and solids. Address IF-683, care Industrial Finishing.

WANTED TO BUY.

Wanted, batch type paint bake oven, gas fired. Approximate inside dimension 4x10x6-ft. high and one (1) vapor degreaser 5x3x3-ft. deep, gas fired. Address IF-694, care Industrial Finishing.

FOR SALE.

One burn-off oven. Make: Young Bros. Co. Thermostat to 1000°. Hand operated conveyor. Oven size 4-ft. width x 7½-in. length x 4½-in. height. Priced reasonably at PACIFIC COAT HANGER MFG. CO., Portland, Pennsylvania.

FOR SALE.

One M & E Manufacturing Company's Model A Thermatic Spray Painting Unit. Complete with motor, hoses, tank and gun. Never used. PAULE CHEMICAL CORP., Charlestown, Mass.

FORD CUPS

THE VOL-U-METER COMPANY

Buffalo 16, New York

Write for Catalog of

Paint Testing Apparatus

Bethesda 14, Md.

FACTORY FOR SALE.

Located in Newark, N.J. industrial section. Conveniently located. Ample transportation. One two-story brick building 30x100-ft. Sprinklered. Equipped with steam heat Scott Marine Boiler 125#. One one-story fireproof modern concrete building 30x110-ft. Concrete office building 30x30-ft. Three iron buildings, 10,000 sq. ft. yard space with street entrance. Forty-foot brick stack 30-ft. wide with five boiling units. Price, $65,000 for prompt sale. Address IF-695, care Industrial Finishing.

It's a Bigger, Better Bonus when you give it in Bonds

It's a *bigger* bonus when you give it in U. S. Savings Bonds. That's because Savings Bonds pay $4 at maturity for every $3 purchased. If it's a $75 bonus, for example, and you give the bonus in Bonds, the employee receives—not a $75 Bond—but a *$100* Bond. And he *collects* $100 if he holds the Bond till maturity.

It's a *better* bonus when you give it in Bonds. It encourages saving among your employees —helps to make them more secure, more stable, more contented and productive on the job. Another reason is that the more Bonds people hold today, the greater will be tomorrow's purchasing power—without which no business can prosper! Then again, Savings Bond sales aid the nation's economic security by spreading the national debt.

Thus you help your employees, your company, and the good old U. S. A. itself—which means *yourself*!—when you give the bonus in Savings Bonds . . . and when you push the Payroll Savings Plan. All the facts and assistance you need are available from your State Director, Savings Bonds Division, U. S. Treasury Department. Call him now.

The Treasury Department acknowledges with appreciation the publication of this message by

INDUSTRIAL FINISHING

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and The Advertising Council.

INDEX to Advertisers

Advance Paint Co. ..... Front Cover
Allied Finishing Secialties Co. 39-94
American Richwood Products Co. 113
Atlas Powder Co. 53

Barrett Co., Leon J. 95
Baughn Chemical Products Co. 106
Bede Products, Inc. 19
Berry Bros. 45
Better Finishes & Coatings, Inc. 6
Binks Mfg. Co. 50-51
Brown Co., Andrew 16
Brown Co., Fred A. 107
Burdett Mfg. Co. 47

Cellusuede Products, Inc. 104
Century Products Co. 93
Chemco Products Co., Inc. 21
Claremont Waste Mfg. Co. 97
Classified Advertising 117
Clinton Co., The 108
Conforming Matrix Corp. 43
Cover, H. S. 111

Day & Co., James B. 91
DeBurgh Conveyors 78
Detro Mfg. & Sales Co. 103
Detroit Surfacing Machine Co. 101
Dolan & Co., Inc., V. J. 5
Drakenfeld & Co., Inc., B. F. 107
Du Pont de Nemours & Co., E. I. 60-61
Duralac Chemical Corp. 28

Gardner Laboratory 118
Grand Rapids Varnish Corp. 2

Hercules Powder Co. 15
Hilo Varnish Co. 87

Ideal Chemical Co. 98
Industrial Chemical Development Corp. 112
Interchemical Corp. ..... Second Cover

Jensen Specialties, Inc. 1

Kirk & Blum Mfg. Co. ..... Back Cover
Kirker Chemical Co. 7

Lanly Co., The 110
Lawrence-McFadden Co. 105
Lilly Varnish Co. 10-11
Logan Engineering Co. 29

M. & E. Mfg. Co. 27
Mahon Co., The R. C. 8-9
Midland Industrial Finishes Co. 94
Miracle Paint Rejuvenator Co. 108
Miskella Infra-Red Co. 116

National Air Sander, Inc. 67
National Lacquer & Paint Co. 115
Neilson Chemical Co. 35
New York Woodfinishers Supply Co. 83

Oakite Products, Inc. 33

Palmer-Bee Co. 89
Perfection Paint & Color Co. 62
Pulmosan Safety Equipment Co. 110

Randolph Products Co. 59
Ransburg Electro-Coating Corp. 37
Rayon Processing Co. of R. I. 85
Reliance Varnish Co. 69
Renner Co., George 116
Richards-Wilcox Mfg. Co. 77
Rockford Varnish Co. 79
Ronci Machine Co. 99

Schaefer Varnish Co. 71
Shell Chemical Corp. 49
Shuman Chemical Products, Inc. 109
South Florida Test Service 98
Spruance Co., The Gilbert 73
Standard Varnish Works ..... Third Cover
Stanley Chemical Co. 57
Stewart-Warner Corp. 81
Stille-Young Corp., The 102
Sundstrand Machine Tool Co. 75

United Lacquer Mfg. Corp. 25

Varnish Products Co. 21
Vol-U-Meter Co. 118

Wilkinson Equipment & Supply Co. 115
Wyandotte Chemicals Corp. 113

Yarnall Paint Co. 55
Young & Bertke Co., The 23
Young Bros. Co. 98

Finishing Time Cut 55%

LARGE PARKING METER MANUFACTURER* MORE THAN DOUBLES PRODUCTION BY USING *ALPO-33A HAMMER FINISH*

* Name on Request

PROBLEM: Using a finish with the required properties called for a 20-minute drying time. Problem was to speed up production by finding a quicker-drying finish, with equal or better properties.

SOLUTION: Manufacturer sent sample parking meter to our laboratories. Extensive tests on samples sprayed with our Alpo-33A Hammer Finish, showed better weather and abrasion resistance than finish formerly used —AND, *finish dried in 9 instead of 20 minutes* at 275° to 300° F.

TYPICAL APPLICATIONS: Automobile heaters, water heaters, appliances, photographic equipment and loud speaker systems.

Thousands of formulae on hand in our files to solve your finishing problems. Extensive laboratory facilities and large technical staff ready to develop and test finishes on your products. Write today for Technical Data Sheet on Alpo-33A, or send your products for finish specification and for testing.

STANDARD VARNISH WORKS

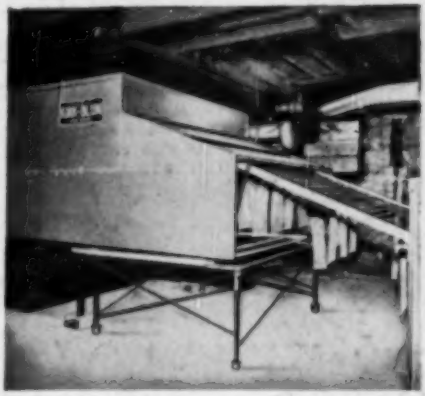
ENGINEERS OF FINE INDUSTRIAL FINISHES

SINCE 1870

KIRK & BLUM FINISHING SYSTEM

CLEANS..DRIES..LACQUERS..BAKES

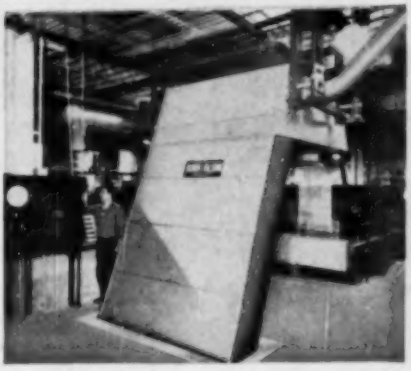
. . . 360 to 700 Wire Shelves Per Hour at the Bauer Brothers Co., Springfield, Ohio



2. To lacquer dip below, drain and then . . .

3. Through baking oven and back up to unloading station.

1. Shelves leave cleaning tanks, go down through drying tunnel . . .



PRODUCING a clear lacquer finish that stands rigid acid and abrasive tests, this Kirk & Blum Finishing System carries wire refrigerator shelves through six operations from loading to packing for shipment. Two to four men operate the entire system which handles 360 to 700 shelves per hour, depending on size. Cleaning operations are on the first floor of the plant, lacquering and baking operations in the basement directly underneath. Fume control for removal of fumes and products of combustion is a part of system.

Kirk & Blum designs, fabricates and installs systems to exactly meet your plant requirements. You are assured an efficiently operating system from *ONE* responsible manufacturer, ready to operate.

Write for catalog, "Industrial Ovens."

The Kirk & Blum Mfg. Co., 2831 Spring Grove Ave., Cincinnati 25, O.

KIRK AND BLUM

INDUSTRIAL OVENS